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ABSTRACT

This report examines population trends in Nevada and the current and projected capacity of University and Community College System of Nevada (UCCSN) institutions to graduate teachers. After an executive summary and introduction, the first section discusses "Supply and Demand for Teachers in Nevada: The Future," which includes "Current Workforce Information," "Projected Rate of Growth in Teaching Positions," and "Projected Rates of Completion of UCCSN Teacher Education Programs." The second section focuses on "Strategies for Meeting Nevada's Needs," discussing "Teacher Education Curriculum." The third section, "Professional Development for Teachers," examines "Future Directions." After the conclusion and summary, the report presents five appendixes: "Nevada Collaborative for Academic Success," "Regents Initiative on Teachers for Clark County," "Teacher Recruitment and Retention Strategies," "Participants in the K-16 Collaborative and Teacher Education Study," and "Comments from University Faculty and National Leaders on the UCCSN Workshop Aligning K-12 Academic Standards and Preservice Teacher Education." (Contains 16 tables and 9 figures.) (SM)

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UNIVERSITY AND COMMUNITY COLLEGE SYSTEM OF NEVADA

REPORT ON TEACHER EDUCATION IN NEVADA

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(in accordance with SCR 46, 1997 Session)

JANUARY, 1999

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January 1999

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REPORT ON TEACHER EDUCATION IN NEVADA

EXECUTIVE SUMMARY

This *Report on Teacher Education in Nevada* was compiled by the University and Community College System of Nevada and shaped by three initiatives: the Collaborative for Academic Success, the Teacher Education Workshop, and the Regents' Initiative on Teachers for Clark County. These efforts involved faculty and administrators from the two universities and the four community colleges, the Board of Regents, and K-12 teachers. From the beginning, this study on teacher education was given the full support of President Carol Harter of the University of Nevada, Las Vegas, and President Joe Crowley, of the University of Nevada, Reno. All community college presidents provided assistance for faculty to participate and develop the first two years of teacher education programs. President Richard Moore of the Community College of Southern Nevada provided additional support for the initiative to increase the number of teachers in Clark County. President Ron Remington of Great Basin College is building a teacher education program for rural Nevadans. Information from all school districts was gained by individual interviews with the superintendents or their designees. K-12 teachers and administrators were involved in the teacher education workshops on content.

The resulting report examines population trends in Nevada and the current and projected capacity of UCCSN institutions to graduate teachers. After extensive analysis, the conclusion is clear: Nevada higher education needs to produce more teachers for Nevada's schools while ensuring quality teacher education programs designed to support the new K-12 academic standards.With significant new initiatives and more resources from the state, the University of Nevada Las Vegas, the University of Nevada Reno, and Great Basin College will be able to produce 47 percent of the new teachers needed for Nevada's schools by 2008-09, a major increase from less than 25 percent today.

An examination of the current teaching workforce in Nevada shows the following:

- ✓ New hires (licensed K-12 personnel) are likely to be under 30 years old, have a bachelor's degree only, have a degree from an out-of-state institution, but possess no teaching experience.
- ✓ The percentage of teachers who are 50 years of age and older is increasing.
- ✓ By Nevada's licensure definitions, the number of teachers teaching out-of-their-licensure area is very small.
- ✓ Both population projections, public school rates of growth and projected turnover rates indicate increasing needs for new K-12 hires. The estimated number of teachers needed to fill openings in Nevada over the next ten years is 26,953.

An examination of the UCCSN teacher education programs shows the following:

- ✓ At UNLV the number of licenses and degrees granted has more than doubled over the past five years.
- ✓ At UNR the number of licenses has increased and will be approximately a 66 percent increase in six years from 1993 to 1998.
- ✓ Projected production of teachers from UNLV, UNR, and GBC through 2008-09 can meet 44 percent of the need for new teachers hired in Nevada, an increase of the current 25 percent from all Nevada programs.
- ✓ This increase represents a doubling of the number of new teachers produced by UCCSN annually.

This increase in number of graduates of UCCSN programs is dependent on the following:

- ✓ 2 + 2 partnerships between community colleges and universities
- ✓ New innovative fast track programs for teachers, designed particularly for adults wishing to change or upgrade careers
- ✓ Partnerships with school districts to provide support for internship/practicum sites, use of school sites as classrooms, and financial incentives and support for potential teachers
- ✓ Recruitment of more students into the teaching profession, particularly students in high need content areas, such as mathematics and science, and minority students
- ✓ Early recruitment of high school students into higher education tracks that prepare them for teaching with college courses in the high schools and other programs
- ✓ New teacher education program at Great Basin College
- ✓ State support for new initiatives and continuing enrollment growth

Balancing quality while increasing quantity will not be an easy task. The Education Trust assisted UCCSN faculty in matching the teacher education preservice programs to the new Nevada K-12 academic standards. That study is progressing and it is anticipated that

- ✓ Faculty in both the colleges of education and the colleges of arts and sciences will be partners in shaping preservice and inservice teacher education programs.
- ✓ Faculty in both the universities and the community colleges will support high quality, rigorous content and education courses for teachers.
- ✓ Graduates of UCCSN institutions will have high pass rates for the state licensure examinations and that data will be reported publicly (as federally required).
- ✓ UCCSN institutions will be responsive to the concerns of the school districts, teachers, and parents of K-12 students as they shape curriculum for both inservice and preservice teacher education.
- ✓ More distance education opportunities will be available to teachers and K-12 students to support the new standards.

Higher education must be involved if educational reform in Nevada is to succeed. All of the UCCSN institutions are committed to providing the highest level of support. As partners with K-12 and the state, we can provide excellent and appropriate education for teachers, principals, and counselors for Nevada's schools.

University and Community College System Of Nevada

REPORT ON TEACHER EDUCATION IN NEVADA

INTRODUCTION

In 1997 the Nevada State Legislature passed Senate Concurrent Resolution No. 46 directing the University and Community College System of Nevada (UCCSN) Board of Regents to conduct a study regarding the projected need for teachers in the public school system. SCR 46 indicated that the study should include an evaluation of:

1. The projected number of teachers that will be required to be hired to meet the needs of the public schools of this state over the next decade.
2. The current enrollment of students in the schools of education in the University and Community College System of Nevada and the ability of the university system to accommodate an increase in students seeking to become teachers.
3. Whether the projected enrollment of students in the schools of education is anticipated to meet the need for new teachers.
4. If an increase in enrollment in students entering such programs is anticipated, the advisability and cost of expanding teacher training programs and the advisability and costs of expanding the physical facilities necessary to meet the anticipated need for expanding the teacher training programs.

Concurrent with this legislative study request, two other developments were occurring that would influence teacher education programs. First, the Education Reform Act was passed by the 1997 legislature and mandated the establishment of high academic standards for all K-12 students in all subjects, beginning with English/language arts, mathematics, and science. This standards-based reform, with new standards developed through a Council to Establish Academic Standards, would clearly change the curriculum and teaching expectations throughout K-12. Given this change, a study of teacher education programs within UCCSN institutions would be incomplete without an examination of the required curriculum for preservice teachers. The question posed was whether Nevada's university graduates are prepared to teach in Nevada's K-12 schools, given the 1997 Education Reform Act.

Second, in the summer of 1997, a team of administrators and faculty representing K-12, higher education, and the business community began to create a K-16 Alliance entitled *Nevada Collaborative for Academic Success: A Blueprint for Nevada K-16 Initiatives 1997-2002*. Built on the opportunities that were in place with the implementation of standards-based reform, this partnership was approved by the UCCSN Board of Regents in October 1997 and by the Nevada State Board of Education in December 1997. The principles of this partnership became a guide to the future of higher education in general and its many relationships with K-12 students and teachers (See Appendix A). In addition to the alignment of preservice teacher education with the new standards, agreement was reached to align inservice (professional development) teacher education with the standards and the new assessments.

This report on teacher education in Nevada focuses then on three topics:

1. Supply and Demand for Teachers in Nevada: The Future
2. Teacher Education Curriculum
3. Professional Development for Teachers

A summary of recommendations and initiatives from all three sections is included in the final section.

SUPPLY AND DEMAND FOR TEACHERS IN NEVADA: THE FUTURE

Projections of the number of teachers required to be hired to meet the needs of Nevada's public schools are based on a) data from the Nevada Department of Education on current and historic patterns of teacher hires, b) national trends data, c) interviews with superintendents (or their representative) of all school districts in Nevada, and d) State of Nevada demographic data. At the same

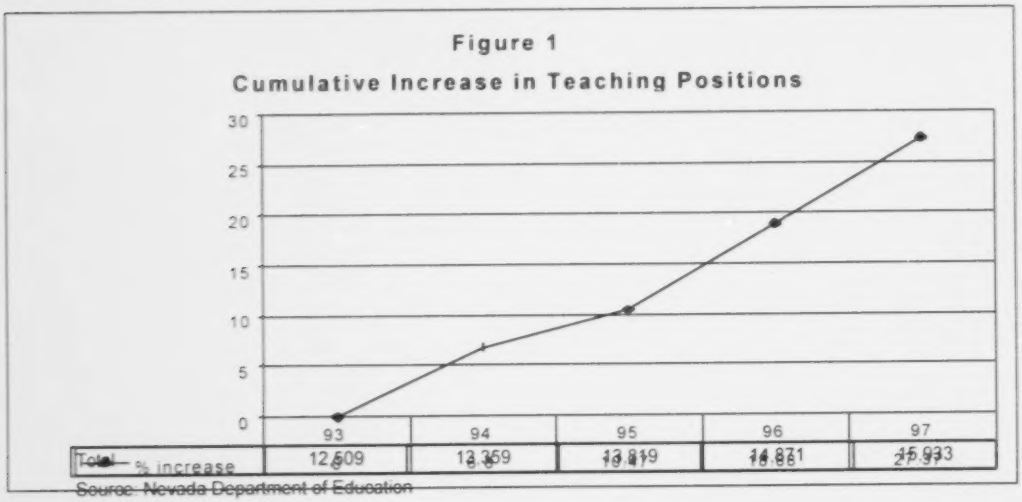
time, historic and projected data on enrollment and graduates from the University of Nevada, Las Vegas (UNLV), the University of Nevada, Reno (UNR), and Great Basin College (GBC) were compiled to assess the supply side of the equation.

Current Workforce Information[1]

According to data from the Nevada Department of Education, the number of teachers in Nevada has increased by 3,424 (27.37 percent) from 12,509 in 1993 to 15,933 in 1998 (Figure 1).

Figure 1

Cumulative Increase in Teaching Positions



Source: Nevada Department of Education

Teachers are certified in Nevada by elementary, secondary, and special education areas. The number of teachers in each area, when looked at as a percent of the total number of teachers, has remained basically stable across the past five academic years. In general, elementary education teachers have consistently accounted for approximately 50 percent of total teachers, secondary education 36 percent, and special education 13 percent. These figures differ slightly from the national figures reported for 1996 in which teachers in elementary, secondary, and special education accounted for 45 percent, 43 percent, and 12 percent of the total teaching population, respectively.

These three general certification areas can be further analyzed by separating the state into three basic geographic designations: Clark County, Washoe County, and the remainder of the state referred to throughout this report as *Balance of the State*. Not surprising, given the rate of growth in Las Vegas, the teaching population in Clark County has been increasing at a much higher rate than in the other two geographic areas. Clark County teachers increased from 7,374 in the 1993-94 academic year to 9,784 teachers in 1997-98, an increase of 33 percent, compared to increases of 23 percent for Washoe County and 17 percent for the balance of the state (Table 1).

It is of interest to note that the greatest rate of increase when comparing certification areas is in secondary education for both Washoe and Clark Counties. This has occurred even though the elementary education certification area has consistently accounted for the greatest percent of the total teaching population.

Table 1

Elementary, Secondary and Special Education Teachers

	93-94	94-95	95-96	96-97	97-98	Percentage Increase for 1993 to 1997
Elementary	6,455	6,718	6,964	7,523	8,018	24.21

[1] *The discussion that follows refers to either "all licensed personnel" or "new licensed personnel." These are the designations used in the Research Bulletins from the Nevada Department of Education. The category "all licensed personnel refers to all licensed personnel employed through Nevada school districts and the category "new licensed personnel" refers to all licensed personnel newly hired for the year indicated. The Research Bulletins are published in February of the academic year (e.g., data for academic year 1995-96 is published in February 1996).*

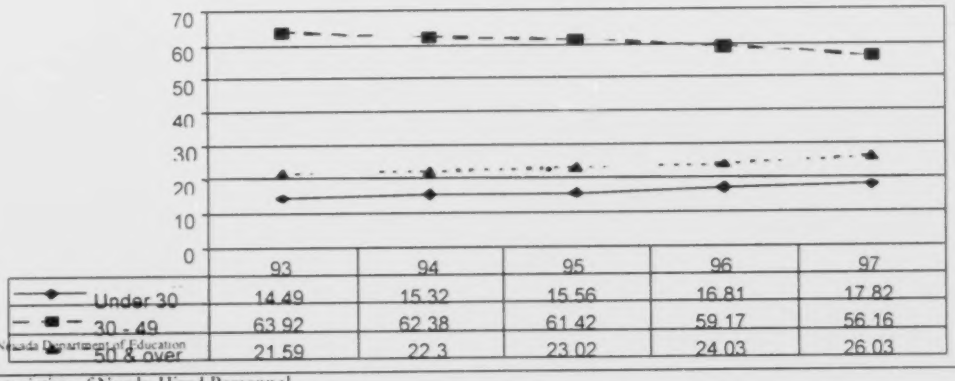
Clark	3,740	3,888	4,019	4,458	4,850	29.68
Washoe	1,264	1,340	1,399	1,466	1,525	20.65
Balance of State	1,451	1,490	1,546	1,599	1,643	13.23
Secondary	4,418	4,871	4,987	5,356	5,803	31.35
Clark	2,645	3,000	3,046	3,317	3,627	37.13
Washoe	792	820	889	917	1,009	27.40
Balance of State	981	1,051	1,052	1,122	1,167	18.96
Special Education	1,636	1,770	1,868	1,992	2,112	29.10
Clark	989	1,075	1,139	1,227	1,307	32.15
Washoe	330	360	364	381	402	21.82
Balance of State	317	335	365	384	403	27.13
TOTAL	12,509	13,359	13,819	14,871	15,933	27.37

Source: Nevada Department of Education

Age of K-12 Personnel

Although data on age of teachers are not available, some trends can be seen for all licensed K-12 personnel. The percent of licensed personnel who fall into the 30 - 49 year old age group has been declining, from 64 percent of the total number of licensed personnel in the 1993-94 academic year to 56 percent in 1997-98. The remaining two age groups--under 30 and 50 and over--have both been increasing as a percent of the total licensed population. The under 30 age group has risen slightly over the five academic years reported, accounting for 15 percent of all licensed personnel in 1993-94 and 18 percent in 1997-98. The greatest increase can be seen in the percent of personnel accounted for by the 50 and over age group, from 22 percent in 1993-94 to 26 percent in the 1997-98 academic year
(Figure 2). The increase in the over 50 age group points toward an anticipated higher rate of retirements among current teachers, a trend consistent with national data.

Figure 2
Percent of All Licensed Personnel by Age Group



	93	94	95	96	97
Under 30	14.49	15.32	15.56	16.81	17.82
30 - 49	63.92	62.38	61.42	59.17	56.16
50 & over	21.59	22.3	23.02	24.03	26.03

Source: Nevada Department of Education

Characteristics of Newly Hired Personnel

From academic year 1993-94 to 1997-98, newly hired licensed personnel have accounted for between 8 percent and 12 percent of the total number of licensed personnel. For these same years, between 92 percent and 95 percent of all the licensed personnel hired are assigned to classrooms. Newly licensed personnel who are under 30 have accounted for an increasing percent of all new hires, from 43 percent in the 1993-94 academic year to 51.34 percent in

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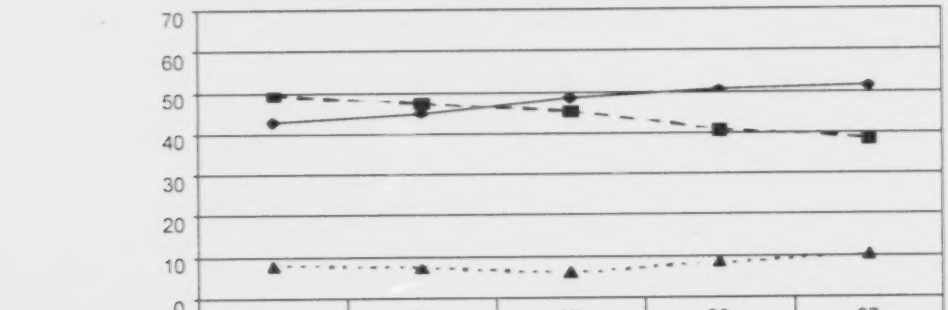
1997-98. Hiring of 30 - 49 year-olds dropped from 49 percent in 1993-94 to 39 percent in 1997-98, a decrease of 10 percent (Figure 3). Newly hired personnel are far more likely to hold a bachelor's degree only, accounting for between 81 percent and 87 percent of the total number of new hires in the past five academic years. The percent of newly hired personnel reporting no out-of-state experience has increased steadily from 68 percent in 1993-94 to 88 percent in 1997-98.

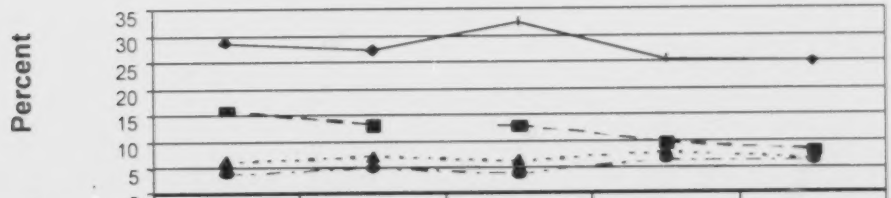
Figure 3
Percent of New Hires by Age Group



	93	94	95	96	97
Under 30	42.75	45.19	48.60	50.77	51.34
30 - 49	49.41	47.50	45.40	40.92	38.61
50 & over	7.84	7.30	6.01	8.31	10.05

Source: Nevada Department of Education

Nevada, California, Utah, and New York are the top four states which produce the teachers in Nevada (Figure 4).

Figure 4
Percent of All Licensed Personnel by State in Which Degree Was Earned
- Top Four States -

	93	94	95	96	97
Nevada	28.86	27.41	32.58	25.51	24.82
California	16.00	13.18	13.06	9.65	8.15
Utah	6.20	7.08	6.21	7.84	6.41
New York	3.84	4.85	3.79	6.42	6.15

Source: Nevada Department of Education

It is important to note that, although Nevada produces the highest percentage of newly hired licensed personnel, the number of personnel earning their degree in Nevada is not a majority. In fact, the percent of newly licensed personnel who earned their degree in Nevada has been declining from
29 percent in 1993-94 to 25 percent in 1997-98.

In summary, it appears that licensed K-12 personnel newly hired in Nevada are likely to be under
30 years old, have a bachelor's degree only, have a degree from an out-of-state institution, but possess no out-of-state teaching experience. By necessity or by choice, younger, less-experienced teachers are being hired, primarily from out-of-state – a trend that has broad implications for the need for professional development of Nevada's K-12 teachers.

Teaching Out-of-Field

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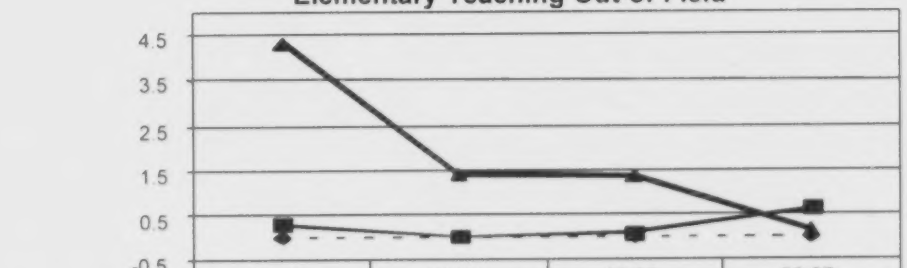
The data on personnel teaching out-of-field for Clark County, Washoe County, and the Balance of the State (BOS) have been assembled from the Nevada Department of Education Accountability Reports for the calendar years 1993 through 1997. The teaching out-of-field data are expressed as a percent of the total number of teachers in the schools of the region. When compared to national percentages of teachers identified as teaching in a field in which they are not qualified, Nevada's percentages of those teaching out-of-area appear very modest.

The percentage of those teaching out-of-field in elementary schools has remained at zero in Washoe County, and Clark County had only 0.62 percent in the 1996-97 academic year. The most remarkable improvement in teaching out-of-field in elementary schools has occurred in BOS counties, where the percentage has dropped from 4.31 percent in 1993-94 to 0.14 percent in 1996-97 (Figure 5).

Figure 5
Elementary Teaching Out-of-Field

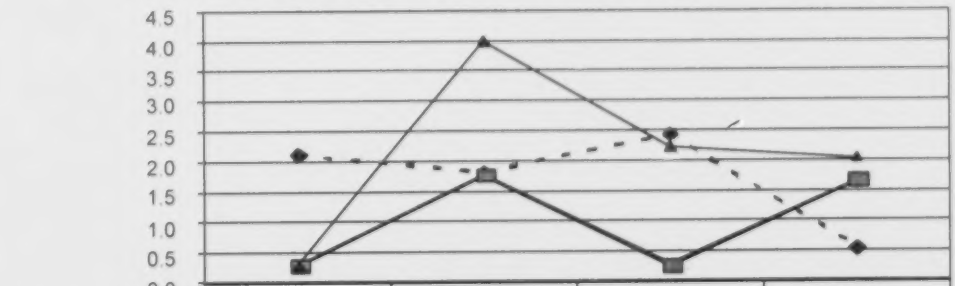


	93-94	94-95	95-96	96-97
Washoe	0	0	0	0
Clark	0.29	0	0.08	0.62
BOS	4.31	1.4	1.36	0.14

The data on teaching out-of-field in the secondary schools have been divided into the three discipline areas outlined in the Nevada Academic Standards: English, science, and mathematics. The percentage of secondary teachers engaged in instruction out-of-field in English has been variable in all three regional divisions (Figure 6). Both Washoe and Clark County have fluctuated between 0.53 percent and 2.43 percent between 1993 and 1997. In BOS counties the percent teaching out-of-field in English was 3.99 percent during 1994-95, but has decreased over the last two years to 2 percent.

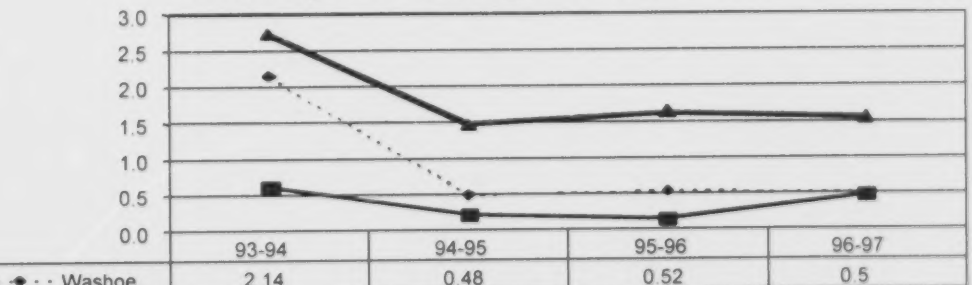
The teaching out-of-field in science and mathematics has been more consistent in all three regions of Nevada. In mathematics, the percent of those teaching out-of-field has decreased then leveled off over the last four years in all three regions (Figure 7).

Figure 6
Secondary English Teaching Out-of-Field



	93-94	94-95	95-96	96-97
Washoe	2.1	1.81	2.43	0.53
Clark	0.27	1.77	0.26	1.66
BOS	0.28	3.99	2.22	2.02

Figure 7
Secondary Math Teaching Out-of-Field

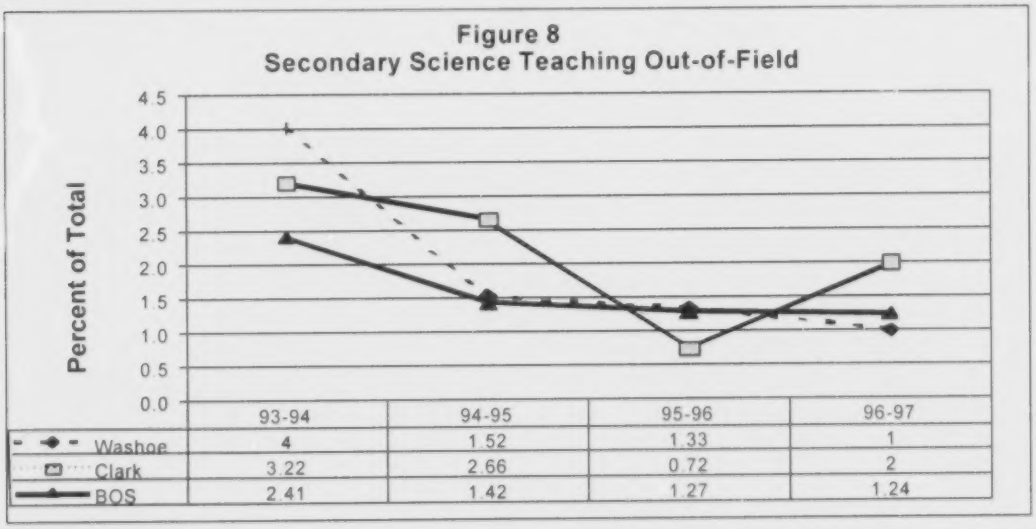


	93-94	94-95	95-96	96-97
Washoe	2.14	0.48	0.52	0.5
Clark	0.61	0.21	0.14	0.47

Source: Nevada Department of Education

The secondary science teaching out-of-field has decreased from a high in 1993-94 in all three regions to lows in 1996-97 (Figure 8). In all areas of the state, the percent teaching out-of-field in math and science is very small.

Figure 8
Secondary Science Teaching Out-of-Field



	93-94	94-95	95-96	96-97
Washoe	4	1.52	1.33	1
Clark	3.22	2.66	0.72	2
BOS	2.41	1.42	1.27	1.24

The number of teachers needed in the coming years will be a function of many factors: the increase in the number of school-aged children, the turnover and retirement of existing teaching personnel, further class size reduction efforts, changes in the K-12 dropout rate, and changes in federal regulations, as, for example, special education requirements, and others. This estimate of the number of teachers needed for the next ten years attempts to take some of those factors into account, but changes will likely occur that cannot be predicted.

Growth in Students and Teacher Positions

According to the Nevada Department of Employment, Training, and Rehabilitation, the **projected openings in teaching positions** in Nevada (including both new and turnover) from 1996 to 2006 are 7,630 positions, an increase of 51 percent. This compares to a projected 21 percent increase for the United States over the same period. The Department of Employee, Training and Rehabilitation projected increase for Clark County more than doubles that for both Washoe County and the balance of the state in each of the certification areas, but all areas will experience growth (Table 2). If growth is assumed to be steady over the 10-year time frame, the Department of Employment, Training and Rehabilitation estimate that growth in new teacher positions will be approximately 5 percent per year.

Table 2

Teacher Position Projections for Nevada and the U.S.

		Clark County	Washoe County	Balance-of-State	Statewide	Nationwide
Elementary Education	# of positions for 1996	3,420	1,450	1,840	6,700	1,491,000
	# of positions for 2006	5,830	1,910	2,320	10,060	1,644,000
	Increase in # of positions 1996-2006	2,410	460	480	3,360	153,000
	% Increase in # of positions 1996-2006	70.47	31.72	26.09	50.15	10.26
Secondary Education	# of positions for 1996	3,540	1,200	1,370	6,110	1,406,000
	# of positions for 2006	5,870	1,570	1,720	9,160	1,718,000
	Increase in # of positions 1996-2006	2,330	370	30	3,050	312,000
	% Increase in # of positions 1996-2006	65.82	30.83	25.55	49.92	22.20
Special Education	# of positions for 1996	1,540	430	320	2,290	407,000
	# of positions for 2006	2,550	570	400	3,510	648,000
	Increase in # of positions 1996-2006	1,010	140	80	1,220	241,000
	% Increase in # of positions 1996-2006	65.58	32.56	25.00	53.28	59.10
Total - All Certification Levels	# of positions for 1996	8,500	3,080	3,530	15,100	3,304,000
	# of positions for 2006	14,250	4,050	4,440	22,730	4,010,000
	Increase in # of positions 1996-2006	5,750	970	910	7,630	706,000
	% Increase in # of positions 1996-2006	67.65	31.49	25.78	50.53	21.37

Source for Nevada state data: Department of Employment, Training, and Rehabilitation
Source for National data: United States Bureau of Labor Statistics

Population projections for 5 to 19 year olds in Nevada (Tables 3 and 4) show a 38 percent increase from 1997 to 2004 or a total increase of 140,028 school-age children. (This compares to a projected 0.9 percent increase nationally from 1997 to 2005 for the age group 5 to 17.) Clark County is projected to continue to have the greatest rate of increase for all three age groups (5 - 9, 10 - 14, and 15 - 19 years old). Again, if one assumes steady growth over the period of this projection, then Nevada State Demographer and Nevada Department of Taxationestimate growth in population is approximately five to six percent per year.

Table 3 Projections of 5 to 19 Year Olds in Nevada	
1997	371,607
2004	511,635
Increase in population	140,028
% Increase in population	37.68

Source: Nevada State Demographer and Nevada Department of Taxation

Table 4 Projections of 5 to 17 Year Olds in U.S.*	
1997	50,558,000
2005	51,033,000
Increase in population	475,000
% Increase in population	0.94

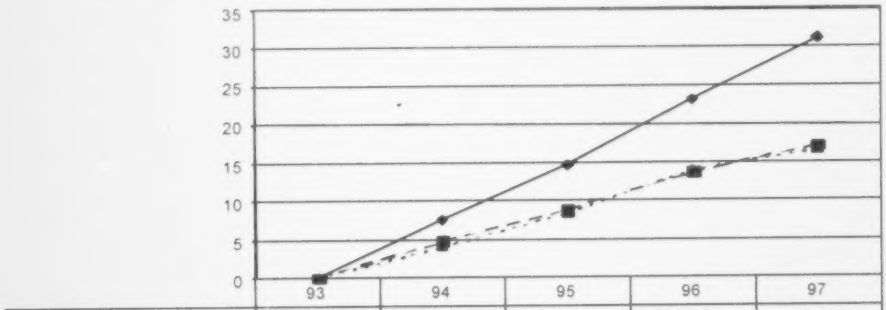
Source: United States Bureau of the Census

* National data for 5 to 19 year olds not available

Nevada's **K-12 public school enrollment**[2] over the past five years has been growing at an average rate of 5.9 percent yearly, a total of 15,039 students (figure 9). This rate of growth can be projected to continue or increase, based on the population figures above, and clearly supports the projected rate of growth for new teaching positions. Clark County has the greatest rate of increase in its K-12 enrollment in the state (7 percent) and the largest actual student increase. This rate of increase has earned the Clark County School District the distinction of being the fastest growing school district in the country. Enrollment for K-12 students in Washoe County and the balance of the state has also been steadily increasing at an average rate of 3.96 percent each academic year. The United States average yearly increase in K-12 enrollment is 1.6 percent.

Figure 9

Nevada K-12 Public School Enrollment Cumulative Increase



Source: Nevada Department of Education

There are three sources for growth projections for Nevada – Department of Education, Training and Rehabilitation data on teaching positions, official population growth estimates, and K-12 public school growth. All three sources estimate growth at between five to six percent per year. For the purposes of this study, a decision was made to use the projections for K-12 public school enrollment growth, roughly a 6 percent per year growth rate to project new teaching positions.

The projection of growth in teaching positions by certification area is difficult. Nationally, the projections from 1996 to 2006 show a higher need in secondary education (22 percent growth, primarily mathematics and science) and special education (59 percent growth). It is probably safe to assume for Nevada that the greatest mismatch between supply and demand will continue to be in the areas currently identified by Nevada Department of Education as areas of shortage and priorities for future growth: special education, secondary mathematics, physical science, secondary science, and elementary bilingual education.[3] Predictions of teacher need by certification area are not made in this study.

General Turnover Rate

[2] Private school enrollment in Nevada has been from 4.42 to 4.67 percent of the total K-12 enrollment in Nevada. Only public school enrollment is used in this discussion since teacher licensure is not mandatory in private schools.

[3] Rodriguez, Esther M., *Preparing Quality Teachers: Issues and Trends in the States*, State Higher Education Executive Officers, July 1998.

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No aggregate information linking age and years of service is available for teachers by district through the Nevada Department of Education. In order to get a better sense of the anticipated turnover and retirement of existing teaching personnel, UCCSN interviewed all seventeen district superintendents or his/her designee. The superintendents indicated that the turnover rates vary from 1 percent to 15 percent, with the majority reporting an annual attrition rate of 5 percent to 10 percent.

Looking at age alone as an indicator of potential retirements, 26 percent of the current K-12 personnel in Nevada are 50 years old or older, which is congruent with the national trend toward the "graying of the teaching profession." National projections call for an annual attrition rate of about 7 percent for public school teachers, with 29 percent of that attrition due to retirement. If we assume this attrition rate of 7 percent for Nevada, admittedly a conservative figure given the age of our K-12 teachers, then we can estimate turnover alone over the next ten years.

Impact of Class Size Reduction

Following a review of class-size reduction by a 1988 interim legislative study, the 1989 Nevada Legislature enacted the Class-Size Reduction Act (CSRA) to reduce the pupil-teacher ratio in public schools, primarily in the early grades. The class-size reduction program began in grade 1 and selected at-risk kindergartens in 1990-99 academic year. The class-size reduction program was expanded to include grade 2 in 1991-92. For the 1996-97 school year, funding was provided to begin grade 3 reductions. The student/teacher ratio for Nevada's schools for 1997-98 is 16.1:1 for grade 1 (from 25.4 in 1989-90), 15.7:1 for grade 2 (from 25.9 in 1989-90), and 21.8:1 for grade 3 (from 27.1 in 1989-90). This shift has caused an increase in the number of elementary teachers needed in each school district. Further action by the Nevada legislature to extend the class size reductions would have an impact on the number of new teachers needed.

Final Projections

The final projections of the number of new teachers needed for a 10-year period from 1999-2000 to 2008-09 are given in Table 4. They are based on two estimates. The number of new teachers needed due to growth of student population is calculated at 6% growth per year and based on the existing teacher population for the 1998-99 school year of 15,733. New teachers needed due to turnover have been calculated using the 7% per year attrition figure against the base number of teaching positions of the previous year. These rates of change are undoubtedly conservative, and several factors could impact the accuracy of these estimates over the long term, including changes in the Nevada economy or further class size reductions.

Table 5
Projected Need for New Teachers in Nevada

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Increased Positions due to Growth	943	1,000	1,060	1,124	1,192	1,263	1,339	1,419	1,504	1,595
Positions	16,676	17,676	18,736	19,860	21,052	22,315	23,654	25,073	26,577	28,172
Turnover	1,101	1,167	1,237	1,312	1,390	1,474	1,562	1,656	1,755	1,860
New Teachers Needed	2,044	2,167	2297	2,436	2,582	2,737	2,901	3,075	3,259	3,455

Source: UCCSN Estimate
*Positions are total of prior year plus positions due to growth

Thus, the total number of teachers estimated to be needed to fill openings in Nevada over the next ten years is 26,953 (total of bottom row). All of the data indicate that most of those openings will occur in Clark County.

Projected Rates of Completion of UCCSN Teacher Education Programs

A look at past enrollments and licensure rates of teachers completing their teacher education program at UNR and UNLV forms the basis for projections over the next ten years. These projections will be impacted by the availability of new resources essential to create and sustain new expanded programs.

Current Enrollment and Completion Patterns

Historic patterns of completion rates of teacher education programs within UCCSN for the past five years can be compiled from data furnished by the University of Nevada, Las Vegas, and the University of Nevada, Reno. At UNLV, there has been a steady increase in both undergratuate and graduate enrollment and the number of licenses and degrees granted has more than doubled over the same time period (see Tables 6 and 7).

Table 6
UNLV Teacher Education Program

	93-94	94-95	95-96	96-97	97-98
Fall Undergraduate Headcount	1703	1783	1783	1806	1935
Fall Graduate Headcount	718	777	829	856	859
Total Fall Headcount	2,421	2,560	2,612	2,662	2,794
Annual Percentage Increase in Headcount	-	6%	2%	2%	5%
Undergraduate & Graduate Degrees granted*	315	363	402	567	641

Source: UNLV Office of Institutional Analysis and Planning
*Not all degrees granted are for new teachers. This number will be higher than "Licenses Granted."

Table 7
UNLV Teacher Licenses

	94	95	96	97	98*
Licenses granted	230	299	366	494	565
Annual Percentage Increase in Licenses	-	3%	22%	35%	14%

Source: UNLV Office of Institutional Analysis and Planning
In this table only, data are for calendar years, not academic years
* Incomplete as of date of reporting

At the University of Nevada, Reno, there has also been steady increase in undergraduate and graduate enrollment and internships completed. Although the rate of increase at UNR of teacher education undergraduate enrollments has remained steady for the last five years, graduate enrollment has more than doubled during the same time period. The increase in degrees granted has been modest, but there has been a sharp increase in completed internships, a number which indicates "teachers ready for licensure." (See tables 8 and 9)

Table 8
UNR Teacher Education Program

	93-94	94-95	95-96	96-97	97-98
Fall Undergraduate Headcount	843	920	951	1019	1061
Fall Graduate Headcount	159	235	264	308	423
Total Fall Headcount	1,002	1,155	1,215	1,327	1,484
Annual Percentage Increase in Headcount	-	15%	5%	9%	12%
Undergraduate & Graduate Degrees granted*	134	131	122	152	172

Souce: UNR Office of Planning, Budget, and Analysis
* Degrees granted are in only in Education. "Internships completed" is a better measure of new teachers.

Table 9
UNR Teacher Licenses

	93-94	94-95	95-96	96-97	97-98
Internships completed*	178	191	170	211	366
Annual Percentage Increase in Internships	-	7%	(11%)	24%	73%

Source: UNR Office of Planning, Budget, and Analysis
* Reported by institution as best estimate of those qualified for teacher licensure

Both UNR and UNLV are able to provide further detail on the license area of program completers. The areas of licensure for which students completing their approved teacher education programs are prepared can be seen in Table 10 and 11.Remembering that the distribution in the state teacher workforce between elementary, secondary, and special education is currently 50 percent,

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36 percent, and 13 percent respectively[4], the percentages of graduates for 1998 in each field at UNLV (not counting Health Education and Physical Education, and counting Graduate Licensure as secondary) are 41 percent elementary, 49 percent secondary, and 10 percent special education. This balance appears to match the workforce needs remarkably well. Data on the particular disciplines within secondary education are not reported.

Table 10
UNLV Teacher Licenses

License Area	94	95	96	97	98*
Elementary Education	80	145	166	182	216
Health Education	-	-	-	12	9
Physical Education	-	-	-	31	32
Secondary Education	75	81	93	87	84
Special Education	19	33	55	35	53
Graduate Licensure	56	40	52	147	173
TOTAL	230	299	366	494	565

Source: UNLV Office of Institutional Analysis and Planning
* Incomplete as of date of reporting
Data are for calendar years, not academic years

The percentages of graduates for 1997-98 in each field at UNR (counting the dual elementary/special education in two areas of certification) are 52 percent elementary, 22 percent secondary, and 26 percent special education. This balance appears to favor meeting the elementary and special education workforce needs, but the actual area in which the dual majors will teach is not predictable. As with UNLV, data on the particular disciplines in secondary education are not reported.

Table 11
UNR Teacher Licenses

License Area	93-94	94-95	95-96	96-97	97-98
Elementary Education	69	72	61	57	132
Elementary/Special Education*	41	71	44	84	119
Secondary Education	62	45	61	61	109
Special Education	6	3	4	9	6
TOTAL	178	191	170	211	366

Source: UNR Office of Planning, Budget, and Analysis
* Dual major, two possible licenses

From Tables 12 and 13, it can be seen that there has been a substantial increase over the past five years in the number of students who complete the approved teacher education programs at both universities. Both teacher education programs have invested considerable resources and attention to meeting the needs of students who desire to become teachers and in meeting the needs of school districts. These efforts are resulting in more teachers for Nevada.

Future Solutions

Several new partnerships are being built to increase the anticipated number of new Nevada teachers who will be educated within UCCSN institutions over the next ten years. A new partnership between the universities and the community colleges has been built to support teacher education. There is now in place a **2 + 2 transfer** agreement in teacher education between UNLV and the Community College of Southern Nevada (CCSN) and between UNR and Great Basin College, Truckee Meadows Community College, and Western Nevada Community College (WNCC). This 2 + 2 partnership enables students to complete the first two years of their teacher education baccalaureate degree at a community college and transfer to the universities with no loss of credits or time. It is hoped that this new clearly-articulated gateway into teaching will attract more students into teaching and also will attract more minority students into teaching. Community colleges have, in general, been more successful in attracting and keeping larger numbers of first-generation college minority students. Clear information about teaching as a career will be distributed on community college campuses in hopes of increasing the number of teachers for Nevada.

Secondly, the University of Nevada, Las Vegas, the Community College of Southern Nevada, and Clark County School District have taken the lead in addressing Nevada's need for teachers by forming a new partnership. Thd**UCCSN Board of Regents**

[4] Difference is due to rounding.

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Task Force on Teacher Education (Thalia Dondero, Chair) worked with President Carol Harter, President Richard Moore, and Superintendent Brian Cram to design a plan called the Regents Initiative on Teachers for Clark County. This partnership outlines mutual roles and responsibilities between UCCSN institutions and the Clark County School District to produce more Nevada teachers – 1200 graduates of UNLV teacher education programs by 2002-03. The University of Nevada, Reno, has joined the partnership with plans to produce 100 new teachers for Clark County by the year 2003 through special program initiatives beginning fall 1999. The final internship will be in Clark County School District sites in coordination with the UNLV internship program. See Appendix B for the full text of the *Regents Initiative on Teachers for Clark County*.

Key to this Regents Initiative is a budget enhancement request for the 1999-2001 biennium of $3 million. This funding enables 1) the creation of special programs at UNLV in fifth-year licensure, fourth year partnerships, and alternative licensure, 2) the hiring of faculty and support staff at UNLV to serve substantial increases in enrollment, and 3) hiring education faculty and staff at CCSN to support the first two years of the baccalaureate teacher education program. These special programs are dependent on extensive recruitment and retention efforts, with an emphasis in K-12 on early identification of those students interested in teaching so that opportunities for early college can be given to encourage their continuation and academic success. This initiative is dependent on the contributions of Clark County School District to 1) create a loan program for teacher education fifth-year or alternative licensure students and stipends for adults in fast-track teacher licensure programs 2) provide sufficient sites for student teacher field experiences, and 3) provide classrooms after school hours for preservice and inservice teacher preparation programs. All of these new initiatives depend on adequate state funding for program introduction.

There are provisions in the recently passed Higher Education Act that may provide assistance to Nevada. This Act provides new dollars for a focus on improving the quality of the nation's teaching force through recruitment, better preparation, and support for new teachers. Federal funds are available for: 1) grants to new teacher preparation partnerships between teacher preparation institutions and local school districts in high-need areas to strengthen teacher education, 2) grants to similar partnerships for scholarships and other support to prospective teachers who agree to teach in high-need areas, 3) loan forgiveness of up to $5,000 of student loans after a teacher instructs for five years in a low-income community, and 4) Pell grant eligibility for fifth year teacher certification programs. By partnering together with the state of Nevada to take advantage of these programs, CCSD, CCSN, and UNLV may be able to identify and receive the funds for a variety of the needed initiatives.

The third partnership is the one between high schools and UCCSN campuses. Through on-campus high schools, courses for high school students by distance education, and enrollment of high school students in regular college courses, **high school students are being encouraged to attend postsecondary education** – either to seek a baccalaureate degree or to prepare themselves adequately for employment. Within this partnership is an emphasis on getting more students "hooked" into the teaching profession.

Fourth, both universities have in place a strengthened partnership between the**College of Education faculty and the discipline-based faculty in arts and sciences**. They are already working on encouraging students enrolled in arts and sciences disciplines, such as mathematics and biology, to consider teaching as a career. To support more students entering secondary teaching, the faculty are creating clearer pathways for discipline-based majors to gain the needed pedagogy courses to enable them to be licensed as teachers. This partnership is strengthened by the concurrent joint work on preservice teacher education curriculum that is being done as a result of the standards-based reform occurring in K-12 in Nevada.

A final initiative is a proposed **teacher education program at Great Basin College (GBC)**. The UCCSN Board of Regents have given approval for GBC to offer selected baccalaureate degrees. Funding for a degree in elementary education at GBC is included in the budget enhancement requests for the 1999-2001 biennium. Funding for a degree in elementary education at GBC is included in the budget enhancement requests for the 1999-2001 biennium (1.56 million plus $5 million for a dual-purpose High Tech Center). This program would serve the needs of rural Nevada school districts with a teacher education curriculum designed to recruit and support teachers in rural areas. Few teachers who complete the teacher education programs at UNLV and UNR relocate to rural Nevada. An identified need exists to provide teachers for Nevada's rural schools and opportunities for rural youth to become teachers and stay in their home communities.

UCCSN Projection

Within the context of these new partnerships and the GBC initiative, UCCSN campuses have predicted the number of teachers who will be completing their programs. These projections are based on an assumption of enhanced funding, new UNR and UNLV programs, and GBC plans for a four-year program in elementary education. As a foundation, UNR and UNLV have

provided anticipated enrollment projections in teacher education for the biennium, given current state-funded budgeted enrollment (see Table 12). At UNLV, the larger projected increase in enrollment for the 1999-2001 biennium is based on a decision by President Carol Harter to distribute additional campus resources to the College of Education to address Southern Nevada's continuing need for more teachers as well as the plans initiated with the *Regents Initiative on Teachers for Clark County*.

Table 12
Annual Average FTE Enrollment in Education
(Actual and Projected)

	1996-97	1997-98	1998-99	1999-00	2000-01
Total	3,133	3,301	3,559	3,985	4,288
UNLV	1,845	2,000	2,232	2,632	2,908
UNR*	1,288	1,301	1,327	1,353	1,380

Source: UCCSN
*Projections based on 2 % growth rate

When these projections are extended over ten years and based on a growth rate of 2 percent for UNR and 5 percent for UNLV, the final projections appear in Table 13.

Table 13
Projected Annual Average FTE Enrollment in Education

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
UNLV	2,632	2,908	3,053	3,206	3,366	3,535	3,711	3,897	4,092	4,296
UNR	1,353	1,380	1,407	1,436	1,464	1,494	1,524	1,554	1,585	1,617
TOTAL	3,985	4,288	4,460	4,642	4,830	5,029	5,235	5,451	5,677	5,913

Source: UCCSN
Projections based on 2 % growth rate for UNR and 5 % for UNLV after 2001

The projected number of new teachers who will complete UCCSN teacher education programs over the next ten years can be developed based on the success of the new programs described above. It should be noted that the UCCSN Board of Regents is beginning a ten-year planning process in January 1999. That planning process and any potential new directions mapped for the future could change these projections. Physical plant master plans will be developed in conjunction with the overall ten year master plans for UCCSN, and projections on construction costs associated with increased teacher education enrollment would be premature. However, it is clear that additional capital requests will be forthcoming from UNLV if their teacher education program doubles in size as predicted. Additionally, the joint use of facilities with K-12 school districts is particularly helpful in teacher education classes where site-based instruction is often appropriate under any circumstances, and those partnership are being actively developed by all campuses.

Within the uncertainties that all projections face and based on the current data, the numbers of new teachers the UCCSN will produce is in Table 14.

Table 14
Projected Number of Teachers Completing UCCSN Programs

	97-98	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09
GBC	0	0	15	20	35	35	35	35	35	35	35	35
UNLV*	494	565	800	1,000	1,100	1,200	1,200	1,200	1,200	1,200	1,200	1,200
UNR	366	269	275	275	275	375	375	375	375	375	375	375
Total	860	834	1,190	1,295	1,410	1,610	1,610	1,610	1,610	1,610	1,610	1,610

Source: UCCSN
Data for 97-98 are actual
* Historic data by calendar year

Over the next ten years, given new state funding, it is anticipated that the UCCSN will increase their teacher education programs significantly and, by doing so, produce 15,065 teachers. The projected number of teachers needed to fill teaching positions in Nevada over that same period is 26,953, leaving a projected difference of 11,888 IF every graduate of a teacher education program eligible for licensure is hired in a teaching position in Nevada, an unlikely scenario. Past experience indicates that some graduates will choose to leave Nevada or not enter the field of teaching.

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As noted earlier, 25 percent of new personnel hired by K-12 schools in Nevada were from Nevada teacher education programs (UCCSN and others) in 1997-98. Even allowing for 5 percent of our graduates not being hired by K-12, in 2008-2009, UCCSN--primarily through teacher education programs for southern Nevada--will be providing 44 percent of the new teachers needed. Other higher education providers will also contribute to increase that percentage of Nevada-educated teachers.

In order to reach this tremendous increase in production of K-12 personnel, new state funding has to be provided. Budget requests from the Board of Regents to the legislature will reflect this need. For 1999-2001, the enhancement request of $3 million for teacher education enrollment growth highlights the specific funded need. Subsequent needs will be based on enrollment growth. However, for the UCCSN institutions to increase the number of their graduates prepared to be teachers by this amount, concurrent funding for student services has to occur – given the additional need for recruitment and student support if more non-traditional students are to be successful.

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STRATEGIES FOR MEETING NEVADA'S NEEDS

All of the new teachers needed by Nevada's schools will not be graduates of UCCSN universities and colleges. Generally, school districts prefer to hire new teachers from a variety of backgrounds, both socially and educationally. Finding adequate numbers of teachers requires: 1) recruitment and retention of teachers from outside Nevada and of nontraditional students who wish to be teachers,
2) changes in teacher certification requirements where there are artificial barriers for competent individuals who want to teach, barriers not essential to maintaining the quality of the teacher workforce, and 3) the contributions of other teacher education programs

General Recruitment of Teachers

Most states are facing problems within the next decade in meeting demands for teachers. In this climate, general recruitment has become more difficult and many states are providing incentives for teachers to work in their state and for students to enter teaching (See Appendix C for examples). At present, there are few extra financial incentives provided by Nevada's school districts to attract new teachers. The critical need for English as a second language (ESL) and special education teachers is being addressed in Clark County by providing an increased entry-level salary schedule for these two specialties. If one of the most effective means to recruit new teachers is the salary structure, Nevada's average salaries are either competitive or attractive with respect to other western states (Table 15).

Table 15
Nevada Teacher Salary Comparison

	Elementary	Secondary
Nevada	$ 32,493 - $ 45,483	$ 32,035 - $ 45,582
Western States	$ 26,200 - $ 42,600	$ 26,500 - $ 44,800
National Average	$ 37,100	$ 38,500

Source: Nevada Department of Education

Changes in Teacher Certification Requirements

Many of the new programs proposed by UNLV and UNR require changes in teacher licensure if they are to be successful. Additionally, some reasonable changes in licensure will enable competent adults with expertise in particular discipline to enter the profession of teaching and assist in recruitment of teachers from other states. The following is taken from the report on the *Regents' Initiative on Teachers for Clark County:*

UCCSN will collaborate with CCSD in securing legislative initiatives necessary for the recruitment and education of K-12 personnel.

The partnership will require a joint effort to address needed changes in teacher certification. These changes will need to be made by the Commission on Professional Standards in Education. Needed certification changes include:

- Paid internships, supervised by both UNLV and CCSD mentors and supervisors, will be accepted as having met licensure requirements for student teaching.
- Individuals who hold a degree in mathematics or science may use successful completion of the PRAXIS subject or content examination to certify course content requirements for licensure in mathematics or science.
- If a teacher holds an Early Childhood or Middle School license from another state, a three-year provisional license to teach in the teacher's licensed area may be issued while the teacher completes course work that leads to K-8 licensure.
- Individuals who hold a Secondary license are eligible to obtain a limited elementary education endorsement that allows them to (a) teach at the elementary level and pursue additional course work toward K-8 licensure and (b) use this evaluated, satisfactory teaching experience to meet the student teaching requirement for K-8 licensure.
- Teachers who hold a teaching license from another state where less than eight (8) credits are required for student teaching may be granted reciprocity to obtain a license without completing additional credits in student teaching.

Additionally, there is currently a citizenship requirement for Nevada teachers that prohibits the licensure or employment of a person who is not a citizen of the United States.

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NRS 391.060 Citizenship requirements; penalty.

1. Except as otherwise provided in NRS 391.070, it is unlawful for:
   (a) The superintendent of public instruction to issue a license to, or a board of trustees of a school district to employ, any teacher, instructor, principal or superintendent of schools who is not a citizen of the United States or a person who has filed a valid declaration to become a citizen or valid petition for naturalization or who is not a lawful permanent resident of the United States.
   (b) The state controller or any county auditor to issue any warrant to any teacher, instructor, principal or superintendent of schools who is not a citizen of the United States or a person who has filed a valid declaration to become a citizen or valid petition for naturalization, or who is not a lawful permanent resident of the United States.
2. Any person who violates any of the provisions of this section is guilty of a misdemeanor.

(NRS 391.070 allows the employment of an alien teacher through federal teacher exchange programs only.)

Changing or eliminating this NRS provision is needed to allow Nevada school districts to recruit and employ well-qualified teachers from other countries. For example, Canadian teachers are heavily recruited by other school districts across the United States with teacher shortages, but Nevada districts cannot currently employ Canadian citizens.

Other Teacher Education Programs

There are currently three other higher education institutions in Nevada with approved teacher education programs: Sierra Nevada College, Nova Southeastern University, and the University of Phoenix. Sierra Nevada College, which offers the baccalaureate degree and a fifth year required for licensure, has cooperative relationships with Western Nevada Community College on the Fallon campus and with Great Basin College in Elko to offer upper-division and fifth-year coursework. Nova University works closely with Clark County School District, particularly in the area of bilingual education. The University of Phoenix is new to Nevada and plans to graduate its first students in 1999.

Additionally, it should be noted that the Western Governors University is exploring the possibility of competency-based teacher certification through distance education courses and testing, beginning with Nevada. As more institutions expand their distance learning programs, the number of teacher preparation programs offered via various technologies has increased. Currently, 8-10 institutions (including the University of Colorado, Utah State University, California State University, Long Beach, and Old Dominion University) offer teacher education programs that do not require any on-campus component. More and more of these possibilities will appear in Nevada in the next ten years, hopefully enticing more people to choose to become teachers.

Teacher Education Curriculum

As part of the study of UCCSN teacher education programs, UNR and UNLV faculty have committed considerable time and resources to examine the content of the courses thatpreservice teacher education students are required to take in light of the new K-12 standards being developed in English/language arts, mathematics, and science. Community college faculty joined in the process to look at content courses taught in the first two years. These efforts will frame the answer to the question, "Does the preservice curriculum adequately prepare students to teach in K-12 classrooms in Nevada?"

In order to answer this question, representatives from both universities and the four community colleges assembled in Las Vegas in October 1998 to discuss Nevada's new academic standards for
K-12 and to examine the teacher education curricula of both universities. The intent was to ascertain whether the discipline course content within each teacher education program provided the necessary background for teachers to teach the new K-12 standards. Present were discipline faculty representing the three standards disciplines (English/language arts, science, and mathematics), and faculty from education who teach the pedagogy in those same areas. The content of the discipline courses in both elementary and secondary teacher education programs was matched to the new standards. (A list of participants is included in Appendix D.) Each of the faculty groups made recommendations to improve the existing teacher education curricula at both the community college and university levels. Additionally, the faculties sought to define the knowledge expectations that need to be articulated in order to modify the teacher education curriculum. During this process, nationally recognized faculty in teacher education reform in each discipline observed and commented on both the process of our examination of the teacher education

curriculum and the content and continuity of the newly adopted academic standards. (Comments from these national leaders, as well as the UNR and UNLV faculty leaders, are in Appendix E.) The Education Trust took part in the workshop and commented on the alignment of the academic standards and the assessments and examinations currently used in Nevada. The work of the discipline faculty groups continues as they try to develop curricular modifications and descriptions of what Nevada's future teachers will need to know and be able to do.

The themes that emerged from this workshop and subsequent sessions center around the need to:
1) revise content/discipline courses taken by elementary teachers to match the new standards in breadth or in depth, 2) identify the knowledge and skills that teachers need to know and be able to do *in addition to those identified for their K-12 students,*3) engage both discipline faculty and education faculty in the development and monitoring of the programs that prepare teachers, develop or adopt assessments in which faculty have confidence to measure how well teacher education graduates are prepared to teach to the new content standards, and 5) use modifications of preservice teachers education courses that prepare students for the new standards as professional development for current teachers.

Faculty understandably follow the rewards available to them. Current rewards and incentives in higher education may not stress the importance of a) the development of new curricula based on K-12 standards, b) performance assessment of K-12 teachers and/or programs which may require extensive time commitments, and c) discipline/education faculty team teaching and integrating course material across departments. Campuses will need to find ways to reward faculty for their service to the K-12 reform effort.

One result of this examination of preservice teacher education curriculum has been the identification of the need for increased communication between higher education and parents' groups. The recommendations from the *National Standards for Parent/Family Involvement Programs*[5] and standards established by both the National Council for Accreditation of Teacher Education (NCATE) and the National Board for Professional Teacher Standards now call for more parental involvement training in preservice teacher education. Both practicing and beginning teachers, as well as K-12 administrators, will need education in this area.

Education Trust staff had looked at Nevada's current K-12 student assessments and at the PRAXIS examinations required of new entering teachers. Their comments on the strengths and weaknesses of those instruments formed a provocative context for faculty discussions on the quality of the teacher education programs in relation to content material. The following is an executive summary of the Education Trust report to the faculty:

EDUCATION TRUST
EXECUTIVE SUMMARY

As input to the examination of teacher education in Nevada and to the legislative report, the Education Trust in Washington DC has analyzed the content of assessments in relation to the newly adopted Nevada K-12 content standards and in relation to the preparation of teachers.

The recently approved Nevada K-12 standards are powerful levers for education reform. Collectively, they describe a level of educational achievement that until now was not expected of all elementary and secondary students. The standards present a view of education that emphasizes the application of knowledge as well as its acquisition.

Both by raising the academic sights for all students and by further demanding that students be able to apply this content, Nevada has defined a strong framework for educational improvement. But reaching the new standard will require teachers who themselves meet high standards and who are prepared to help their students meet high standards. As a result of this study, the following steps are recommended by the Education Trust:

[5] National PTA, 1998.

1. Reform efforts should be focused on bringing the whole educational system into coherence around the Nevada K-12 standards. This means examining curricula both in the K-12 and in the postsecondary institutions; redesigning assessments; rethinking teacher education; and evaluating the distribution of resources of all kinds (finances, materials, time) to ensure that all Nevada students meet the standards.

2. Defining the additional knowledge ("plus" knowledge) that teachers need beyond the achievement required of the highest level secondary students should be a priority for postsecondary and K-12 educators. After "plus" knowledge has been defined, postsecondary faculty and administration should immediately redesign curricula and instructional modes to ensure that the knowledge is central in the education of future teachers.

3. Tests in Nevada should be chosen, designed, or redesigned so that the conflict between rigor and kind is eliminated. At present, tests used in high school require application of knowledge and skills and tend not to be rigorous. Tests for admission and placement in postsecondary education use questions that are decontextualized and theoretical. Clearly this could lead to students prepared for one kind of test but not the other. Such a division could be avoided by ensuring that all tests test both contextualized and decontextualized knowledge.

4. To maintain coherence throughout the entire system, links between the component parts, especially between K-12 and postsecondary institutions must be forged, maintained, and continuously nourished by faculty, administration, and community.[6]

District superintendents across Nevada expressed opinions about the UCCSN teacher education programs when interviewed in fall 1998. The Nevada school districts that employ most UCCSN graduates are Clark, Washoe, Storey, Douglas Counties, and Carson City. The remaining districts reported that the majority of their new teachers are from the Dakotas, Montana, Wyoming, Utah, Colorado, New Mexico, Alaska, and Idaho. In addition to UNR and UNLV, Sierra Nevada College was mentioned often. Common areas of identified weaknesses of new teachers were 1) classroom management and general communication skills - specifically in talking with peers and parents, 2) stronger skills in working within block and other alternative scheduling, and 3) methods of instruction other than lecturing.

A concern voiced frequently was that students needed to gain experience in the classroom earlier in their college experience. Both UNR and UNLV have strong programs that place students in classroom throughout their curriculum and the community colleges are duplicating this model. Great Basin College is planning a similar early exposure to the classroom for students. The criticism continues, perhaps based on historic practices, not current curriculum. They also mentioned the need for clearer expectations and guidelines that enable the K-12 teacher who is supervising preservice teacher education students in the classroom to deal effectively with problems and concerns. Better communication seems to be the bottom line. In fact, throughout all of the comments was a theme that greater communication and coordination between the universities and the districts would benefit everyone involved.

There are many changes occurring at the federal level that support Nevada's need for new teachers and its need to assure the public that teacher education graduates are well-educated in both pedagogy and content. The faculty have discussed more use of internal **benchmarks** and final **assessments** of students who wish to become teachers and believe this information is valuable to students, faculty, and school districts. Regardless of faculty action in this area, new federal requirements will move us toward accountability and a **guarantee** about the quality of our graduates. The December 1998 **Network News** describes these new federal requirements:

> *States are also required to present an annual "report card" that uses consistent definitions and reporting methods that NCES has been charges with developing. Each state with teacher education programs is required to collect and disseminate information about the quality of the teacher preparation in their state including:*
>
> - *a description of their teacher certification and licensure assessments;*
> - *the standards prospective teachers must meet;*
> - *the pass rate of their graduates on teacher-assessment exams; and*
> - *the extent to which teachers are given waivers of certification requirements.*

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[6] *Achieving Coherence: Tests, Teacher Qualification and State Standards*
A brief study prepared by the Education Trust Inc., Washington DC in support of *Improving Teacher Preparation in Nevada* by Education Trust Representatives Dr. Ruth Mitchell and Dr. Patte Barth

States are further required to identify teacher preparation programs that are performing poorly. Programs that have lost state support will no longer be able to enroll students who receive federal financial aid.[7]

The details of how this will be implemented in Nevada have not been decided, but higher education will partner with the Nevada Department of Education and the school districts to implement this requirement. PRAXIS test results of UCCSN graduates by institution have not been available or published previously, but these **Report Card** requirements will make this information available to the public. Currently, the Praxis examinations are given to teacher candidates as part of their licensure requirements. In Nevada, the Commission on Professional Standards in Education sets the passing score for each examination. Public access to the test/certification examination reports is limited to those results with more than 10 individuals taking the examination in a given calendar year. While most of those who take the examinations do not receive their education in Nevada institutions, they do represent those most likely to teach in Nevada schools. The data for the 1997-98 year (Table 16) indicate that the content area in which teacher candidates have the most difficulty is mathematics. Successful test passage in the sciences and English content is much higher.

The percentage of students passing the two mathematics content knowledge examinations averaged 56.5 percent, but less than half taking the exam reported that they had received the majority of their training in Nevada. Those attempting the mathematics pedagogy examination did considerably better, with 88 percent of those sitting for this exam passing it. There were few underrepresented minorities.

Questions of whether the PRAXIS examinations are the right examinations and whether the passing scores are set high enough to assure quality of the teaching workforce were raised in a study completed by the Education Trust. The test choice and the passing score are decisions made by the Commission on Professional Standards in Education. At this point in time, these test results provide the strongest information available to faculty to assess whether or not their graduates are prepared in both content knowledge and pedagogy.

[7] *Network News*, State Higher Education Executive Officers (SHEEO) and the National Center for Education Statistics (NCES), Vol 17, No. 4, pp. 2-3.

Using both test results and content analysis, the faculty will continue work to ensure that their curriculum prepares their graduates to teach within the context of the new state K-12 academic standards. Preserving the quality of teacher education programs while meeting the challenges of large numbers of new students will be a major task for the faculty, but they are committed to accomplish this.

PROFESSIONAL DEVELOPMENT FOR TEACHERS

The development of new academic standards for student learning demands a concurrent look at the role of the community colleges and universities as providers of professional development opportunities for teachers, administrators, and staff. The need for discipline faculty to be more involved and working with master teachers, the demand to focus on students' assessment results as indicators of need for professional development, and the centralization of professional development in regional professional development centers all offer new models for delivery of continuing education to practicing teachers.

The effort already underway to evaluate where and to what extent the K-12 standards are included in existing higher education courses will provide a foundation for professional development activities to support standards reform. This work will 1) identify those standards for which modules, courses, or other learning opportunities must be developed and 2) help teachers select appropriate courses to address any gaps in their current skills. As a part of this project, UNR has developed a CD-ROM that divides standards into parts and has made this tool widely available.

UCCSN colleges and universities have provided professional development opportunities to K-12 throughout the years. They represent many faculty across institutions and in many departments who are willing and interested in working with K-12 and a range of delivery options (e.g., on campus, distance education through interactive video, Internet, and satellite) upon which to build. The professional development standards established by the National Board for Professional Teaching Standards (www.nbpts.org/nbpts/standards/summaries.html) provide a guide for new program development.

For example, for professional development to change the individual's behavior, it must be a core value of the organization, part of its culture, and sufficiently important to be allocated such important resources as staff time and organizational dollars. For professional development to be effective, those involved must model the behavior being taught, it must be practiced, and it must be implemented into the classroom setting and practiced and improved over time. Lastly, professional development must be a personal responsibility of the individual teacher and a lifetime commitment, a continuous activity that is supported by colleagues with similar values and questioning minds.

While teachers in the future may want semester hours or degrees, increasingly professional development will be tied to the accomplishment of skills, knowledge, or competencies that do not correlate to traditional credit courses. Higher education's role may be less and less focused on credit-bearing courses and more on the development of 1) learning experiences that lead to improved competence and 2) assessments that confirm whether the competencies have been gained.

A number of current models contain important elements of good professional development. Both the Geographic Alliance (GAIN) and the National Writing Project utilize a faculty member and a K-12 Master Teacher to teach content and pedagogy. The faculty brings the latest content expertise and the Master Teacher brings the teaching methods that will work with (for example) 4th-graders or juniors. Assignments require teachers to experience the learning process from the students' point of view and then to find applications for the new content in classroom exercises, lesson plans, or projects.

Future Directions

At a recent statewide meeting, the two universities and four community colleges and DRI developed a list of ways to support K-12 professional development in the future, particularly with an emphasis on changes occurring due to the implementation of academic standards.

1) Expertise on Content and Standards

Discipline/content faculty can work with districts' Master Teachers to provide teachers with the most up-to-date and exciting information in their field of study. To this end, campuses can identify a bank of content faculty who have indicated their interest in providing assistance to K-12 teachers, either in the development of learning modules, activities, or courses, or in response to

needs identified by the regional professional development centers. The campuses can also identify faculty who are experts on the standards and can help identify appropriate content, activities, and assessments for the benchmarks. As an example, the faculty of both UNLV and UNR are currently engaged in an examination of the standards with Washoe and Clark County School districts, respectively, to examine exceeding the approved state academic standards.

2) Integrated Content

An elementary teacher has traditionally taken several science courses (one in biology, chemistry, and earth science, for example) when one integrated science course might be better able to cover the breadth of content knowledge required by the new K-12 standards. An effort to redesign and integrate science curricula for potential elementary teachers is underway at all institutions and will be available for professional development as well.

3) New Models of Delivery

A number of changes are occurring that will allow for more accessible professional delivery opportunities for teachers. The universities and community colleges are planning together to address State needs, avoid duplicate efforts, and share resources. The traditional geographic service areas have been eliminated for distance education so that resources available at one institution may be shared statewide. The development of particular packages by campuses to address identified gaps in knowledge or practice is possible and once developed, these packages could be available to all districts or to the professional development centers. UNLV is working with the Clark County School District on a grant from the Nevada Department of Education to develop materials related to the new standards, including curriculum and assessment materials, which can be used and modified by teachers. An individualized program of study, one that begins with an analysis of what "gaps" exist in the teacher's knowledge or skills is possible, and a personalized plan for professional development can then be prepared by the teacher, a master teacher, and a faculty member who can identify higher education resources to help address gaps. The development of a web- or print-based portfolio that documents the teacher's learning outcomes and competencies gained can be facilitated by higher education faculty who are expert at portfolio assessment.

4) Convenience

While summer will likely remain the most popular time for teachers to participate in intensive professional development, training opportunities will increasingly be available throughout the year. Higher education will offer modular learning opportunities in fall and spring semesters that can be immediately applied in the classroom. Such opportunities will be designed in consultation with or in response to specifications provided by the school districts or the regional professional development centers. Distance education has great promise to enhance convenience and is described in greater detail in a later section. One new opportunity now available with distance education is web-based asynchronous courses. Teachers can learn at the time best for them.

5) Assistance with Board Certification

If an individual teacher chooses to pursue certification by the National Board for Professional Teaching Standards, university and community college faculty can assist in designing appropriate learning experiences and helping the teacher to prepare for the certification exam.

6) Partnerships

The universities and community colleges recognize the importance of partnerships with external providers of professional development opportunities. For example, campuses already have existing activities such as the summer National Teacher Training Institute (NTTI) hosted by KNPB Channel 5 (Reno) and KLVX Channel 10 (Las Vegas). Increasingly opportunities are available through private entities (e.g., Microsoft's Teacher Training Program) to bring important new skills to K-12 educators or students. Lastly, as other projects (e.g., Alliance for Training K-12 Teachers in Instructional Technologies) reach fruition, UCCSN institutions have indicated that they will review curricula developed and pursue strategic partnerships that bring the resources of national efforts to the state of Nevada.

7) Technology

The need for training in technology is universally felt across K-12 and higher education. Clearly, the demands for training in both systems will require a multi-layer approach, with some opportunities for shared training. Basic training in use of computers is likely to remain a local K-12 responsibility, perhaps through the potential regional professional development centers, with use of the resources of a community college and/or using the facilities of a High Technology Center (as CCSN has proposed to do at the Summerlin High Tech Center). More advanced training in the use of software and the Internet in teaching is a new area of the curriculum required for preservice education which can now be transferred through professional development activities to the practicing teaching.

8) Evaluation Design & Analysis

Finally, evaluation research – its design and interpretation – to support K-12's need to evaluate whether its professional development activities are making a difference on student learning can be provided by the universities if it is needed.

9) Administrators & Staff

While a lot of attention has been paid to the needs of teachers in this report, it will be important to include interested administrators and staff in opportunities to learn about the standards and to determine how they can be supportive of K-12 reform. Additionally, administrators will need new ways to think of their roles so they can be more effective in helping students and teachers resolve problems.

As enrollment grows and new schools are built, the state will need to produce more principals. A requirement in the Clark County School District for an assistant principal at each school dramatically increased the need for new administrators. In response to this need, UNLV and Clark County School District have partnered in an effort to identify promising Master Teachers for a one-year program that prepares new principals for the many schools being built. As new schools are built in Washoe County and elsewhere, it will be important for higher education to develop new ways to produce principals and/or expand and update existing programs so that graduates are well-informed about Nevada's standards and are equipped to support K-12 reform.

10) Distance Education

Distance learning may be especially appropriate for the dissemination of information -- content expertise, guidance on assessment, information about the standards themselves -- and, depending on the technology, for discussion among teachers. It has some unique advantages. It can offer learning opportunities statewide and at one time, and it can certainly connect teachers who wish to work together or to discuss issues on-line. However, it may be most powerful when combined with Master Teachers who can mentor teachers locally, provide pedagogical expertise, and help teachers implement changes. Distance learning provided centrally might also be combined powerfully with a local project to make learning more immediate.

The UCCSN's 1999-2001 Budget Request for Distance Education includes a request to fund an approximate doubling of the UCCSN's offerings to teachers through the variety of distance learning technologies and through funding of staff to support distance education. With the installation of 21 interactive video classrooms in or near 16 of 17 school districts, a newly-digitized satellite uplink in Reno, the plan to install satellite downlinks at K-12 schools, and improved access to the Internet for all K-12 schools, UCCSN institutions have the tools to provide support to teachers.

11) Eisenhower Professional Development Program

The Dwight D. Eisenhower Professional Development Program annually awards federal funding (approximately $250,000 per year to UCCSN) to strengthen teacher preparation programs and provide high quality, standards-based professional development for practicing teachers and other educators. Currently, UCCSN and Department of Education staffs collaborate on the design of the Request for Proposal for Eisenhower funding to ensure that projects support K-12 reform. Through the competitive grant process, the Eisenhower Professional Development Program supports collegiate faculty in science, mathematics, and educational disciplines together with primary, middle, and secondary school teachers to provide an environment where creative ideas and methods of teaching can flourish. All projects address pre-service and professional development efforts and initiatives supporting the state mathematics and science content standards.

12) Potential Federal Funding

UCCSN institutions will work with K-12 to take advantage of potential federal funding opportunities to support professional development, preservice teacher education, and the academic standards reform. The first grant planned is the National Science Foundation (NSF) Collaborative for Excellence in Teacher Preparation (CTEP), a grant designed to support a statewide project to achieve significant and systemic improvement in the science, mathematics, engineering, and technology preparation of prospective pre-K-12. The CTEP program provides support of up to $1 million/year for up to 5 years. The NSF Teacher Enhancement (TE) program supports professional development projects that lead to new levels of teacher competence. This grant will be written to focus on two projects: the **induction** period of new teachers and **audit teams** in math and science.

In conclusion, opportunities for professional development contributions from UCCSN are increasing, but there is one frequent barrier. The current restriction on the types of semester hours
(e.g., post baccalaureate) that lead to salary enhancements in some school districts limits good planning. Since appropriate university and community college courses in technology and content are frequently courses at the undergraduate level, this disincentive for teachers to take such courses is a problem that needs to be addressed.

CONCLUSIONS AND SUMMARY

In examining the status of teacher education within UCCSN, it has become apparent that we will be called upon to produce more teachers who clearly meet high expectations of knowledge and practice. The success of K-12 educational reform in Nevada is dependent on higher education's concurrent changes in its curriculum and standards. To successfully recruit, support, and prepare larger numbers of students to teach in Nevada's schools while simultaneously adjusting our teacher education programs to match the new K-12 standards is a momentous undertaking. We have created plans and begun the work, but success depends upon **new partnerships**.

We are accustomed to partnerships with K-12 to create a more accessible and quality educational system. The new High Tech Centers provide a joint facility on a community college campus to give high school students a state-of-the-art laboratory during the day and college classes in the afternoon and evening. Professional development for K-12 teachers is scheduled to be offered at these sites in the afternoon and weekends. Campus High Schools, such as those created at Truckee Meadows Community College and the Community College of Southern Nevada, establish a place on a UCCSN campus for high school students. Distance Education classes for K-12 students and teachers continues to grow in new partnerships and with new technology. New conversations about remedial courses, admission requirements, and assessments are pushing the campuses and their feeder high schools to clarify academic expectations and partner in early assessments – built upon the new K-12 academic standards. Partnerships with K-12 are not new for UCCSN institutions, but the demands of quality teacher education producing a much larger quantity of teachers will require different and stronger partnerships.

Partnerships between colleges of education faculty and faculty from traditional disciplines will be strengthened by the need to ascertain that all teacher education graduates of UCCSN institutions can teach the content and the methodology needed if K-12 students are to rise to the K-12 academic standards. The disciplines of English/language arts, mathematics, and science are already working on course changes as a result of an examination of the new standards. We will be able to guarantee that our graduates are well positioned to teach in Nevada's schools.

Partnerships between community colleges and universities are required if we are to recruit significant new numbers of students into higher education who are interested in teaching. The community colleges can and must deliver the first two years of the baccalaureate degree leading to teacher licensure to many students. The Regents policy on transfer assures students that they can begin their baccalaureate at a UCCSN community college and complete it at UNR or UNLV in the same number of credits as if they started at the university. The cost of educating a student at the community college is less. Two plus two programs are in place in teacher education between all of the UCCSN community colleges and the universities.

Partnerships with school districts are essential. Every campus will need to forge partnerships with school districts to 1) define the district's expectations for teacher education graduates it employees,
2) establish common understandings of measures of excellence of teacher education graduates, 3) seek funding for the costs of student stipends, loans, or other incentives, 4) define the district's needs for professional development for continuing teachers,

particularly to support the implementation of the new K-12 academic standards, 5) establish effective mentoring programs for new teachers, and 6) start early student recruitment efforts.

Partnerships with high schools allow campuses to share classes by dual credit and by distance education, define admission requirements more clearly for students, provide or share assessments that can prevent remedial courses later, and build paths for students to continue on to postsecondary education. Early teacher education courses and activities to recruit more students into teaching are needed in the high schools. Clubs and activities to strengthen the image of teaching as a profession should start in middle schools.

Partnerships with K-12 teachers are needed as they serve as master teachers, supervisors, and mentors. The importance of teachers in the classrooms supporting student teachers and newly graduated teachers cannot be underestimated. Their contributions to learning and practice is essential.

Partnerships with the State Legislature will be required to support 1) new initiatives by UCCSN institutions to produce more teachers, 2) distance education opportunities for prospective and current teachers, and 3) progress toward more master teachers, mentoring programs for new teachers, and teachers who have certification by the National Board for Professional Teaching Standards. Three million dollars in state funding is requested for the 1999-2001 biennium for UNLV and CCSN, $1.56 million is requested to start selected baccalaureate programs at GBC, the first of which will be elementary education, and five million is needed for the High Tech Center at GBC to support teacher education as well as K-12. The problem of teacher shortages is not unique to Nevada and in every instance, statewide policy to support teacher recruitment and retention, as well as higher standards for teachers, is required. In the 1998 Preparing Quality Teachers: Issues and Trends in the States, the State Higher Education Executive Officers described the policy tools that that states are using to try to solve the problem.

Partnerships with industry and business must be built. In the Collaborative for Academic Success, the support of business both defines the workforce needs and provides resources beyond public dollars. Economic diversification and development in Nevada depends on a skilled and educated workforce that must be produced by outstanding schools with excellent teachers. Finding ways to build that partnership will be critical to our broader success.

Partnerships with parents of K-12 students should not be forgotten. Parents care deeply about the quality of their children's teachers. Better communication between universities/colleges and parents about the preparation of teachers is needed.

The creation of a new baccalaureate program in education at Great Basin College is planned to produce more teachers – with an emphasis on teachers for rural Nevada. In ten years, if only UNLV and UNR have teacher education programs and these expand only by the general rate of funded state enrollment growth, outside any special initiatives, the picture will indeed be grim. The rate of growth in K-12 and the concurrent rate of growth in K-12 teaching positions will quickly outstrip the funding for teacher education. Expansion of existing and the creation of new teacher education programs is required.

This study could not project the plan and cost estimates of all physical facilities needed to produce more teachers over the next ten years. The Board of Regents is just beginning a planning process which will establish physical facility master plans for the next ten years. Great Basin College will need a building for its teacher education program, a building to be shared as a High Tech Center with Elko County School District, and that facility is on our 1999-2001 request. There will undoubtedly be the need for other facilities, but we also hope that the joint use with K-12 of space and programs will assist with the need for new teacher education facilities on our campuses.

UCCSN has confidence in its superior teacher education programs as well as its other baccalaureate programs. This study and this process have precipitated good discussions about what students in higher education need to know and be able to do. The UCCSN institutions have pledged to work together to offer appropriate and rigorous courses taught by excellent faculty and to recruit and support students who will become excellent K-12 teachers.

APPENDICES

A. Nevada Collaborative for Academic Success
B. Regents Initiative on Teachers for Clark County.
C. Teacher Recruitment and Retention Strategies
D. Participants in the K-16 Collaborative and Teacher Education Study
E. Comments from University Faculty and National Leaders on the UCCSN Workshop Aligning K-12 Academic Standards and Preservice Teacher Education

A Blueprint for Nevada K-16 Initiatives 1997-2002

The passage of SB 482 in the 1997 session of the Nevada legislature offers opportunities for implementation of standards-based reform to address the following key issues in K-16 achievement in Nevada:

- the need for all students to achieve higher levels of academic success
- lower academic success rates and standardized test scores of African American, Latino, and Native American students
- the lower academic success rates and standardized test scores of children from families with low socio-economic status
- the high dropout rate for high school students
- the low college-going rate of high school graduates
- the high number of students placed in remedial course work upon entry to postsecondary education
- the low rate of persistence through to graduation

We agree to support and pursue cooperative efforts between K-12 and higher education to:

1) Develop and implement standards and assessments that will raise the level of academic achievement of all students in K-16,
2) Align pre-service and in-service teacher education with the State-established standards and assessments, and
3) Reduce impediments and provide incentives for students to complete high school and to enter postsecondary programs that support their successful transition to careers and life.

In these cooperative efforts we will involve the business community and other stakeholders committed to high academic achievement for all Nevadans. This agreement has been approved by the University and Community College System of Nevada Board of Regents and the Nevada State Board of Education.

Nevada Collaborative for Academic Success—Initial Strategies for Success

Strategy 1. In order to develop and implement standards and assessments methods that will raise the level of academic achievement of all students in K-16, we will:

1) Include university and community college faculty, both in disciplines and colleges of education, in the process of developing standards and assessments, to include K-12 teachers and administrators in the development of standards and assessments, in order to address the needs of the state; and
2) Align district standards and curricula with State standards, involving appropriate higher education faculty in that process;
3) As assessments are developed, explore using results for university and college admission decisions and for placement in remedial courses;
4) Develop pilot projects to explore the relationship between K-12 standards and higher education standards; and
5) Communicate expectations for student performance on entry to colleges and universities to K-12. (Teachers, counselors, administrators, students, families and school boards)

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Strategy II. In order to align pre-service and in-service teacher education with the State-established standards and assessments, we will

1) Plan a statewide workshop for fall 1997 on standards implementation in K-16, inviting all of the potential stakeholders;
2) Develop a plan and timeline for implementation of changes (necessitated by the new standards) to pre-service teacher education based on the recognition that the entire campus educates teachers and that the community colleges frequently provide the subject-matter courses for pre-service teachers;
3) Refocus professional development funds on standards implementation and standards-based reform;
4) Work to implement policies that tie professional development content for license renewal to standards; and
5) Work with the State Board of Education to align the program approval process for all teacher preparation programs to academic standards.

Strategy III. In order to reduce impediments and provide incentives for students to complete high school and to enter postsecondary programs that support their successful transition to careers and life, we will

1) Develop connections between the SMART data system of K-12 and the Data Warehousing Project of UCCSN in order to track student progress and identify key issues related to lack of success;
2) Communicate criteria and methods used for placement in remedial course work to K-12;
3) Streamline the review process to identify courses used for admission to the two Nevada universities and explore tying this process to new standards and assessment methods as they are developed, to consider a testing mechanism for high school students who take college courses.
4) Streamline student entry into community colleges and universities and transition from community colleges to universities.
5) Increase UCCSN course offerings to high school students and build in support at the school level.
6) Provide early and appropriate remediation courses and programs to high school students preparing to enter community colleges and universities.

Strategy IV. In order to ensure success, the development of a K-16 Collaborative related to academic success and standards-based reform is desirable and could include proposals for funding for:

1) Mentor teachers,
2) Programs to support new teachers,
3) Leadership programs that focus on standards,
4) Assessment of effectiveness of standards for K-16,
5) Business mentors for school, teachers, and students, and
6) Other initiatives beginning in 1999.

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Appendix B
Regents Initiative on Teachers for Clark County

Approved by UCCSN Board of Regents
November 19 and 20, 1998

Task Force Chair Thalia Dondero
Member Mark Alden
Member David Phillips

Introduction

Nevada is the nation's fastest growing state and has carried that distinction for twelve years in a row. In 1997, the state's population stood at 1,779,850 and is projected to increase to 2,348,950 by 2004, an increase of 32%. The Western Interstate Commission on Higher Education projects that, during that same period, Nevada high school graduates will increase by 50%. Although the rate at which recent high school graduates have continued in college has increased from 32.8% in 1992 to 38.7% in 1996, Nevada's college continuation rate is still the lowest in the nation.

With a background of extraordinary state growth and the public consequences of a population without a strong postsecondary education tradition, the Board of Regents of the University and Community College System of Nevada (UCCSN) has identified "undergraduate access and growth" as their first priority.

Matching that access focus with a concurrent need to address state workforce issues in a rapidly growing state will be a continuous challenge. In summer of 1998, the Regents added three million dollars to the biennial state budget request to address a particular area where growth and access needs coincide: the graduation of K-12 teachers for the fastest growing school district in the country, Clark County School District (CCSD). A Task Force of the Board was created to examine this concern. In a series of meetings, the Task Force examined four questions:

1) How many teachers does CCSD need annually and how many should UCCSN seek to provide?
2) How might UCCSN and CCSD partner to meet these needs?
3) Are there other higher education institutions that can assist?
4) What are the barriers to meeting these needs?

The resulting recommendations are framed within a **Principles for Partnership** agreement. They are built on a strong commitment to a true partnership of equals and a mutual commitment to excellence and high standards.

Principles for UCCSN-CCSD Partnership

Recruitment of Pre-Service Teachers

1. **UCCSN will collaborate with CCSD in publicly agreeing to determine jointly the number and rate of new teachers to be produced by UCCSN institutions, either alone or in needed partnerships with non-traditional private or out-of-state providers.**

Appendix B
Regents Initiative on Teachers for Clark County

Las Vegas has been the fastest-growing metropolitan service area in the United States with a 41 percent increase from 1990 to 1996 -- from a population 852,646 in 1990 to a population of 1,201,073 in 1996. Clark County School District projects an enrollment of approximately 11,000 to 14,000 additional students each year for at least the next ten years. That translates into the need for an additional 1,700 teachers a year. Out-of-state recruiting is becoming increasingly difficult as other K-12 districts are offering recruitment bonuses, as the need for new teachers is increasing in almost every state beyond the current in-state production capacity, and as the reduction of class size as a strategy to improve the quality of K-12 education is becoming more commonplace.

UNLV has developed an ambitious plan designed to produce 1,200 teachers for Clark County School District by 2002-03. Reaching this goal will be dependent on CCSD's support for prospective teachers through loans or stipends. With a variety of new programs, the University of Nevada, Las Vegas (UNLV) plans to graduate 1000 teachers in the academic year 2000-01 and 1200 teachers in 2002-03. The Community College of Southern Nevada (CCSN) plans to produce at least 200 students ready to enter UNLV as juniors in spring 2001 and 200 or more such students annually thereafter. These additional 200 upper class teacher education candidates will be essential for UNLV to reach the minimum goal of 1200.

Other colleges with approved teacher education programs have been invited to enter this partnership to increase the number of teachers available to fill K-12 classrooms. Nova Southeastern University, Sierra Nevada College, and the University of Phoenix spoke to the Regents' Task Force about future plans in southern Nevada. Additionally, the Western Governor's University is exploring the possibility of competency-based distance-education delivered teacher certification in Nevada. Partnerships between CCSN, UNLV and other providers will be developed as needed to produce teachers for Clark County.

The University of Nevada, Reno, will begin a program in fall of 1999 designed to produce teachers who will work in Clark County. If successful, this program will supplement by 100 the 1200 teachers needed by Clark County from the UCCSN by 2003. Given the various contingencies in recruiting potential teachers from new populations, many different strategies should be tried.

2. **UCCSN will collaborate with CCSD in emphasizing the recruitment of students into the teaching profession with new initiatives, accessible programs, and scholarships.**

Extraordinary demands have been placed on UNLV to prepare additional teachers for Clark County schools, and the university has responded by increasing the annual production of teachers from 299 in 1995 to a projected 600 in 1999, a significant increase within only four years. To reach the goal of 1000 graduates in two more years will be a significant achievement, and UNLV will need to expand not only the number of students pursuing baccalaureate degrees, but also the shorter paths to teaching through alternative licensure and licensure-only programs. It is under these programs that the fellowships, loans, and/or stipends from the school districts will be essential. UNLV will expend the additional $1million annually to support these new teacher education programs requested under the Regents' Initiative. Additionally, UNLV will allocate funds internally to support the needed faculty, support staff, and operating budget. This commitment has already begun with a major reallocation of resources internally in 1998-1999 with searches for 21 new faculty positions in the College of

Education. The new pathways to teaching will be built on collaborative efforts with the Community College of Southern Nevada (CCSN) and with the Clark County School District (CCSD).

Creative initiatives will allow UNLV to double the number of teachers completing programs between 1999 and 2003. The realization of this number of graduates will be dependent on the partnership with CCSD and their making available loans and stipends for potential employees, particularly for post-baccalaureate students who need transitional financial support. These can be designed differentially to attract teachers to high need areas, such as at-risk schools and teaching areas with deficits.

With this partnership in place, the following is a summary of the initiatives planned by UNLV, including the number of graduates planned for each in 2001 and 2003. The UNLV graduates will expand through these programs:

- Baccalaureate degree programs (350, 400)
- Majors in other disciplines in fourth year (100, 100)
- Two plus two baccalaureate with CCSN (0, 200)
- Masters degrees that place students in the classroom in one year and give a degree in two (220, 250)
- Fifth year licensure programs for people with baccalaureate degrees from other accredited programs, usually school based and in one year or less (160, 180).
- Alternative licensure programs in high need areas in partnership with CCSD and the Council on Professional Standards for individuals with specialized experience and expertise that will help place them into the classroom quickly (170, 200).

CCSN and UNLV have a two plus two agreement in place which guarantees that students can enter CCSN, complete the first half of their baccalaureate degree, and transfer to UNLV in their junior year to complete their teacher education program. This new entry point for potential teachers is an important component of recruiting high school students who may not heretofore have considered teaching as a career. Success in diversity of students is a strength of CCSN, and a more diverse teaching workforce is needed in Clark County. The implementation of this agreement and the concurrent recruitment and retention of large numbers of new students through this pipeline will require the expenditure of an additional $500,000 annually. CCSN has three education faculty and has plans to hire three more by spring 1998. Twelve education faculty will be in place at CCSN by 2000-01 to support this effort, as well as additional discipline-based faculty to teach all other lower-division courses

The efforts of CCSN will be focused on both CCSD employees who desire to receive their teacher certification and other interested students. Using flexible class scheduling, often on site at a CCSD school, and a variety of strategies to support and retain these students, CCSN will provide the first two years of the teacher education programs in elementary, secondary, special education, and early childhood education.

Estimated UNLV Teacher Education Productivity

PROGRAM	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
Baccalaureate Programs	392	300	320	350	400	400
Graduate Licensure	173	200	200	220	220	220
Fifth Year Licensure*	0	100	150	160	180	180
Fourth Year Partnership	0	0	30	100	100	100
Alternative Licensure**	0	0	100	170	200	200
2+2 (CCSN/UNLV)	0	0	0	0	0	200
TOTAL	565	600	800	1000	1100	1200

* Urban Teaching Partnerships, Math and Physical Science Project (PDDSE), and Special Education

** Special Education and Early Childhood Education for college graduates, Alternative Route to Licensure, Internship Leadership, and Undergraduate Cohort – partnerships with Commission on Professional Standards and Nevada State Department of Education

Annual Average FTE Enrollment in Education

UNLV

	Actual		*Projected*		
	1996-97	1997-98	1998-99	1999-00	2000-01
TOTAL	1,845	2,000	2,232	2,632	2,908
Continuing	1,845	2,000	2,232	2,412	2,643
New	--	--	--	220	265

CCSN

	Actual		*Projected*		
	1996-97	1997-98	1998-99	1999-00	2000-01
TOTAL	7	16	145	227	320
Continuing	7	16	145	152	160
New	--	--	--	75	160

Projections for enrollment in 2001 to 2003 will be established in the next budget process. Based on these projected enrollments, a budget for the expenditure of $2 million for UNLV and $1 million for CCSN in the biennium has been developed.

3. **UCCSN will collaborate with CCSD in providing funding incentives for potential teachers through tuition waivers and scholarships.**

The availability of financial assistance and scholarships is helpful in recruiting traditional baccalaureate-level students and critical in recruiting post-baccalaureate candidates who usually have other financial obligations and do not qualify for financial aid. Both CCSN and UNLV have existing programs that will need to target information and assistance toward potential undergraduates. CCSN and UNLV will also place special emphasis on the use of scholarships and state aid for students entering high need

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teaching areas, such as special education, mathematics and science, and with a commitment to at-risk schools.

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4. **CCSD will collaborate with UCCSN in facilitating and recruiting potential teachers from CCSD employee pool.**

CCSD will provide support for employees to have flexible work assignments, where possible, and to continue their salaries with benefits while they are enrolled in a teacher education program if their job assignments can be met. Recruitment of substitute teachers and paraprofessionals within the district who have worked with students and who want to be teachers is essential for a stable, committed teacher workforce in a short timeframe. UNLV and CCSN will collaborate to start these recruits in a program that meets their needs and then to track them in cohorts to provide the best methods of instructional delivery and student support. Classes will be offered in places and at times convenient to students. The employees selected will have demonstrated a good record of service with CCSD and those who receive financial support will make a commitment to teach for a period of time equal to the district support.

5. **CCSD will collaborate with UCCSN in facilitating recruitment of K-12 students to CCSN, UNLV, and UNR.**

For the long-term success of this partnership, recruitment of more students into postsecondary education and into the teaching profession is essential. CCSD will collaborate with CCSN and UNLV to establish pathways to include Middle School Future Educators, a Senior High School Teacher Cadet Program, and a Teacher Magnet High School. CCSN will provide credit-generating college classes in the high schools that give students teaching experiences in classrooms in order to recruit them into a career in teaching. This two plus two plus two model (high school plus community college plus university) is gaining national recognition, and the possibility of grant funding exists for this type of program. Recruitment will thus involve multiple layers of effort – with students able to enter the pathways to teaching at multiple points.

The University of Nevada, Reno will begin a recruiting program in collaboration with CCSD, CCSN, and UNLV for potential teachers who may desire their coursework on the UNR campus, but who seek employment after completion of the program with CCSD. Their final internship will be in CCSD sites in coordination with the UNLV internship program. This effort has the potential to add 100 new
teachers for Clark County by the year 2003, thus supporting or exceeding the 1200 goal set for UCCSN.

6. **CCSD will collaborate with UCCSN in providing funding incentives for future teachers through stipends.**

UNLV, CCSN, and CCSD will develop jointly a plan of action for financial support for students enrolled in teacher education programs that lead to employment by Clark County School District. This plan will then be incorporated into a CCSD legislative request.

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Funds for a loan program for teacher education fifth year or alternative licensure students will be sought by CCSD. One model being considered for this program would be loans of up to $10,000 for students seeking to work in high-need areas or at-risk schools, with a 50% forgiveness of the loan after a specified period of teaching in CCSD. Stipends for adults in fast-track teacher certification programs provide the other means of support. Given that these programs are normally one-year in length only, CCSD will seek to support stipends of up to $10,000 for one year for individuals who commit to work as teachers for the district for a stipulated period after they are licensed.

The recently passed Higher Education Act provides new dollars for a focus on improving the quality of the nation's teaching force through recruitment, better preparation, and support for new teachers. Federal funds are available for: 1) grants to new teacher preparation partnerships between teacher preparation institutions and local school districts in high-need areas to strengthen teacher education, 2) grants to similar partnerships for scholarships and other support to prospective teachers who agree to teach in high-need areas, 3) loan forgiveness of up to $5,000 of student loans after a teacher instructs for five years in a low-income community, and 4) Pell grant eligibility for fifth year teacher certification programs. By partnering together with the state of Nevada to take advantage of these programs, CCSD, CCSN, and UNLV may be able to identify and receive the funds for a variety of the needed initiatives.

Pre-Service Teacher Education

7. **UCCSN will collaborate with CCSD in designing the competency set and learning outcomes for new teachers within the context of state standards with both education and academic discipline faculty involvement.**

UCCSN faculty are looking at various ways to ensure the quality of teachers who graduate from a UCCSN institution. In response to the Nevada Education Reform Act passed by the 1997 Legislature, faculty work groups are examining the congruence between the new K-12 standards and the teacher preparation curriculum in both content and pedagogy areas. They plan to make changes as needed to incorporate the knowledge needed for teachers to be able to teach the new content. The faculty are looking at institutional assessments of pre-service teacher knowledge and skills that would be established by each institution or systemwide.

UNLV, CCSN, and CCSD now have a model partnership to support this effort and are establishing a clear understanding about competencies and learning outcomes. With this in place, all graduates of UNLV should be well prepared for the CCSD classrooms. New teachers who need assistance with these basic competencies will be given additional help from UNLV in partnership with CCSD. CCSD and UNLV will work to ensure that new teachers will be placed "for success" with adequate mentoring support and appropriate placements. All UCCSN institutions will continue to study and consider the appropriateness of models of quality assurance that may be in place in other states, including those that offer a guarantee of assisting recent graduates at no additional cost to the students.

The new Higher Education Act requires the States and higher education institutions to prepare reports on the quality of teacher preparation, including their students' performance on teacher licensing examinations. All UCCSN institutions involved in teacher preparation programs will publish a report

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that includes this information as well as the agreed upon evidence that the competency set and learning outcomes for new teachers have been met.

8. **UCCSN will collaborate with CCSD in aligning the CCSD entrance requirements with exit examinations for UCCSN graduates.**

Graduates of UCCSN institutions should be on track for immediate employment by Nevada school districts. CCSD representatives will be consulted in the creation of appropriate exit measures, both for content and teaching performance.

9. **UCCSN will collaborate with CCSD in establishing performance evaluations for teacher education students with benchmarks at appropriate points.**

Both UNLV and CCSN faculty will consult with CCSD to establish these evaluations. It will be particularly important when we are recruiting new groups of students into teaching to have these performance evaluations occur at regular points when students can still receive the assistance they need to rise to the standards and to persist into teaching. Tutoring and supplementary assistance will require resources of both institutions, as well as potential help from CCSD teachers.

10. **CCSN will collaborate with CCSD in identifying, recruiting, and screening master teachers into UCCSN classrooms and field sites.**

CCSD teachers may hold positions as mentors, supervisors, adjunct faculty, and/or visiting faculty at both CCSN and UNLV. This will serve to strengthen both the K-12 classroom and the pre-service teacher education experience. The selection of master teachers will be a joint endeavor, and appropriate rewards for those teachers for their involvement in teacher preparation will be jointly designed, taking advantage of all available resources. UCCSN will explore the provision of financial assistance for CCSD master teachers and supervisors providing course and field-based instruction in teacher education programs as appropriate and feasible.

11. **UCCSN will collaborate with CCSD in defining, monitoring, and enforcing seamless articulation between UCCSN institutions engaged in teacher preparation, following the transfer and articulation policy of the Board of Regents.**

The transfer and articulation policy in place within UCCSN underscores the importance of major-to-major agreements, allowing Nevada students to begin work on a baccalaureate degree at any community college and transfer to UNR or UNLV to complete the degree. For education majors, the already articulated 2+2 agreement between CCSN and UNLV ensures this process is in place. In order to support this effort, UNLV and CCSN will: 1) look for opportunities to invite faculty representatives to each other's faculty meetings, 2) use adjunct faculty status across institutions in education as appropriate to strengthen curriculum coherence, 3) share resources appropriately, and
4) utilize Clark County master teachers in field supervision and in classroom teaching where appropriate.

12. **UCCSN will collaborate with CCSD in securing legislative initiatives necessary for the recruitment and education of K-12 personnel.**

The partnership will require a joint effort to address needed changes in teacher certification. These changes will need to be made by the Commission on Professional Standards in Education. Needed certification changes include:

- Paid internships, supervised by both UNLV and CCSD mentors and supervisors, will be accepted as having met licensure requirements for student teaching.
- Individuals who hold a degree in mathematics or science may use successful completion of the PRAXIS subject or content examination to certify course content requirements for licensure in mathematics or science.
- If a teacher holds an Early Childhood or Middle School license from another state, a three-year provisional license to teach in the teacher's licensed area may be issued while the teacher completes course work that leads to K-8 licensure.
- Individuals who hold a Secondary license are eligible to obtain a limited elementary education endorsement that allows them to (a) teach at the elementary level and pursue additional course work toward K-8 licensure and (b) use this evaluated, satisfactory teaching experience to meet the student teaching requirement for K-8 licensure.
- Teachers who hold a teaching license from another state where less than eight (8) credits are required for student teaching may be granted reciprocity to obtain a license without completing additional credits in student teaching.

Additionally, there is currently a citizenship requirement for Nevada teachers that prohibits the licensure or employment of a person who is not a citizen of the United States.

NRS 391.060 Citizenship requirements; penalty.

Except as otherwise provided in NRS 391.070, it is unlawful for:

The superintendent of public instruction to issue a license to, or a board of trustees of a school district to employ, any teacher, instructor, principal or superintendent of schools who is not a citizen of the United States or a person who has filed a valid declaration to become a citizen or valid petition for naturalization or who is not a lawful permanent resident of the United States.

The state controller or any county auditor to issue any warrant to any teacher, instructor, principal or superintendent of schools who is not a citizen of the United States or a person who has filed a valid declaration to become a citizen or valid petition for naturalization, or who is not a lawful permanent resident of the United States. Any person who violates any of the provisions of this section is guilty of a misdemeanor.

(NRS 391.070 allows the employment of an alien teacher through federal teacher exchange programs only.)

Changing or eliminating this NRS provision is needed to allow Nevada school districts to recruit and hire well-qualified teachers from other countries. For example, Canadian teachers are heavily recruited by other school districts across the United States with teacher shortages, but Nevada districts cannot currently hire Canadian citizens.

13. **CCSD will collaborate with UCCSN in providing sufficient sites for UCCSN student teacher field experiences.**

This model of teacher education will place tremendous demands on CCSD for a sufficient number of classrooms with teachers willing to partner with UCCSN. First, CCSN plans K-12 classroom experiences for high school students and for CCSN students to emphasize the rewards of public school teaching. UNLV will have increased numbers of traditional pre-service education students with needs for internships and field experiences. For all non-traditional paths to licensure, field-based experiences in which students teach and attend classes at a designated CCSD sites are essential. All institutions will work to support the needed communication channels demanded by integrated field learning.

14. **CCSD will collaborate with UCCSN in providing CCSD classrooms after school hours for use in pre-service and in-service teacher preparation programs.**

These new programs will demand more classes, and more of these classes will need to be at nontraditional times, such as evenings and weekends. More teaching of courses in clusters and in short time intervals can be expected. The extension of CCSN and UNLV into CCSD sites is essential and will meet needs of district employees enrolled in alternative programs. Both UNLV and CCSN have current joint use agreements with CCSD that should make this use of CCSD classrooms administratively routine.

Alternative methods of delivery through satellite, two-way video, the Internet, and other asynchronous methods will also be explored for efficient and effective provision of needed content. In order to meet the commitment to produce the teachers that CCSD needs, other distance education providers will be considered as options, with the possibility of courses delivered to large numbers of students in a cost-efficient manner.

Inservice Education

15. **CCSD will collaborate with UCCSN in:**
    - **Providing and designing staff development**
    - **Designing induction year programs**
    - **Implementing standards**
    - **Developing K-12 curriculum**
    - **Developing equitable cost-sharing for High Tech Centers and other joint-use facilities**

No area is more critical to the long-term viability of this partnership than the linkage of professional development to pre-service teacher education and the resources of UCCSN. CCSD and CCSN have agreed to use the High Tech Centers as professional development centers from mid-afternoon until evening. The importance of standards-based content, technology in the classroom, and the use of

assessment results to improve student performance cannot be underestimated. UNLV and CCSN faculty with expertise in these areas will work with CCSD to plan appropriate professional development experiences. Working together on professional development in these areas guarantees that pre-service education will also be strengthened.

Research and Assessment

16. **UCCSN and CCSD will collaborate in identifying and seeking funding for:**
    - **Research studies needed by policy-makers**
    - **Research internships in various divisions in CCSD**

Underpinning this partnership will be a continuous evaluation and research component. How do we educate the best teachers who can most effectively enhance student learning? With this laboratory of innovation, rapid growth, and joint initiatives, a research emphasis is a natural component. Both UCCSN and CCSD will combine efforts to seek funding for research, share information and data, and agree on research priorities. For example, UNLV and CCSD were recently awarded a Nevada State Department of Education grant to develop professional development material for teachers to assist them in teaching to the new Nevada State Standards. Classroom teacher researchers and teacher educators will combine efforts to ask questions, gather information, and share results. CCSD will open the door to research initiatives identified by UNLV faculty, and UNLV will be receptive to research questions raised by CCSD.

One area of special concern is the follow-up of students who drop out of the various new teacher education programs prior to completion. This initiative will require a very high retention rate. Program evaluation will require that a concerted effort be put in place to track those students who do not persist to completion and look for ways to keep students who can be successful in the programs.

Recommended Follow-Up

In order to carry out these initiatives, a K-16 Council for Teacher Education will be created that will meet at least four times a year to monitor and report on the partnership. Members of the Council will include representatives from CCSD, UNLV, CCSN, the Board of Regents, and the Chancellor of UCCSN.

CCSD and UCCSN will lobby jointly for the fiscal and legislative initiatives necessary to increase so markedly the number of new teachers available through UCCSN for Clark County schools.

Summary of Principles for UCCSN-CCSD Partnership

The Board of Regents of UCCSN and the CCSD Board agree to enter into a partnership of equals to recruit, educate, and train K-12 teachers. This partnership is built on the following principles:

Recruitment of Pre-Service Teachers

UCCSN will collaborate with CCSD in:

- Publicly agreeing to determine jointly the number and rate of new teachers to be produced by UCCSN institutions, either alone or in needed partnerships with non-traditional private or out-of-state providers;
- Emphasizing the recruitment of students into the teaching profession with new initiatives, accessible programs and scholarships; and
- Providing funding incentives for teachers through tuition waivers and scholarships.

CCSD will collaborate with UCCSN in:

- Facilitating and recruiting potential teachers from CCSD employee pool;
- Facilitating recruitment of K-12 students to CCSN, UNLV and UNR; and
- Providing funding incentives for future teachers through stipends.

Pre-Service Education

UCCSN will collaborate with CCSD in:

- Designing the competency set and learning outcomes for new teachers within the context of state standards with both education and academic discipline faculty involvement;
- Aligning the CCSD entrance requirements with exit examinations for UCCSN graduates;
- Establishing performance evaluations for teacher education students with benchmarks at appropriate points;
- Identifying, recruiting, and screening master teachers into UCCSN classrooms and field sites;
- Defining, monitoring, and enforcing seamless articulation between UCCSN institutions engaged in teacher preparation, following the transfer and articulation policy of the Board of Regents; and
- Securing legislative initiatives necessary for the recruitment and education of K-12 personnel.

CCSD will collaborate with UCCSN in:

- Providing sufficient sites for UCCSN student teacher field experiences;
- Providing CCSD classrooms after school hours for use in pre-service and in-service teacher preparation programs.

In-Service Education

CCSD will collaborate with UCCSN in:

- Providing and designing staff development;
- Designing induction year programs;
- Implementing standards;
- Developing K-12 curriculum; and
- Working with UCCSN to develop equitable cost sharing for high-tech centers and other joint-use facilities.

Research and Assessment

UCCSN and CCSD will collaborate in identifying and seeking funding for:

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- Research studies needed by policy-makers;
- Research internships in various divisions in CCSD.

Legislative Initiatives

UCCSN and CCSD will collaborate in identifying legislative initiatives necessary for the recruitment and education of K-12 personnel.

STATE	TEACHER RECRUITMENT AND RETENTION STRATEGIES
Arizona	⇒ University of Arizona's Project BEAM (Bilingual Education and Math) Collaboration with the Tucson School District to promote and support students who teach mathematics in Spanish.
Florida	⇒ Miami Dade Community College (MDCC) Teacher Training Program Recruits local students into the teacher-training program, which includes articulation with a local private college. 98 percent of locally recruited students remain in Dade County. ⇒ MDCC faculties receive adjunct appointments from the four-year college to enable them to offer 3rd and 4th year courses to their community college education students.
Georgia	⇒ Floyd College Teacher Education Program: Has an articulation agreement with 3 of the state's 4 four-year colleges. Linked to local high schools and provide summer camps for 7th and 8th grade students to introduce them to teaching as a career. Education students leased notebook computers to encourage students to utilize technology.
Illinois	⇒ Parkland College Articulation agreement with all community colleges and state colleges and some private colleges in Illinois. ⇒ All websites across the state are kept up-to-date that inform students about statewide requirements for all majors, for 2 and 4 year degrees. Eases student access to transfer requirements. ⇒ Northwestern University and the Golden Apple Foundation: Recruiting and retooling individuals with backgrounds in math & science who are not teaching. A two-year process that combines night and summer school courses with full-time teaching in Chicago public schools. Participants are assigned to schools in groups of 4 for support, along with a mentor teacher. In the end, they earn master's degrees in education and a state teaching certificate. Recruiting these more adult teachers into urban schools and providing in-school mentoring has increased the retention rate to 85 percent. Only 5-10 percent of the young, teaching college graduates have been successfully retained in the urban schools. ⇒ Financial Research and Advisory Committee (FRAC) Initiative: Hiring Initiative – Position guarantees in March or April to new teacher recruits, with a high probability that they will get the school they want. ⇒ University of Illinois at Chicago- Teacher Retention Program: Training 120 veteran teachers to be mentors to about 300 new teachers in their schools per year. Planning to double the program yearly to get into all Chicago public schools within the next 3 years.
Kansas	⇒ Kansas Statewide Teacher Recruitment and Retention Program: The goal is to increase the number of individuals choosing special education as a career while retaining current professionals in the field.
Louisiana	⇒ Tuition Opportunity Program for Students (TOPS): Funds available to all Louisiana institutions with approved teacher certification programs. *Education Majors - $4000 loan* *Math & Chemistry Majors - $6000 loan*
Maryland	⇒ Montgomery County Community College: Merging the education program into the general studies track. Providing in-service training to teachers to include required courses for certification in specific disciplines.
Massachusetts	⇒ University of Massachusetts at Amherst (UMass) and Springfield Technical College (STCC) Project STRIDE: Guaranteed admission to a UMass teacher certification program upon successful completion of an associate's degree at STCC. Financial aid counseling throughout teacher education studies. K-12 classroom experience while at STCC to improve realization of rewards of public school teaching. Provide support and encouragement during course of study and through the job search. Active recruiting of diverse student body. ⇒ Bristol Community College: Part of a statewide program in Massachusetts that guarantees admission from a 2-year school into one of the state's 4-year colleges. Provides a Tuition Advantage Program,

	which offers a 33 percent reduction for transfer into selected programs, including elementary education, at the state's 4-year institutions.
Mississippi	⇒ Mississippi Teacher Shortage Act of 1998: Recipients receiving four years of assistance must teach in a geographic shortage area for three years. Scholarships pay for tuition, student housing, meals, books, materials, and fees. Low-cost rental housing will be provided in some areas. Special home loans available to participants. Recipients given up to $1000 in moving expenses when they begin teaching in a geographic shortage area. Teachers can pursue a master's or specialist degree at participating Mississippi colleges and universities. Participants receive tuition, fees, material, and books at no cost. ⇒ Mississippi Teacher Center Troops to Teachers: Actively recruits and assists transitioning servicemen and women to become teachers. Provides facilitation and guidance through the certification process and follow-up job assistance and referral.
New York	⇒ Teacher Incentive Program: Undergraduate $4000 scholarships for a maximum of 4 years-obligated to teach in eligible school one year for each year of award. Graduate one-year $10,000 scholarship with obligation to teach in eligible school for 3 years. Certified applicants receive $10,000 bonus with obligation to teach 3 years in high-need eligible school. ⇒ College/University Incentive Program: Two-year grants to colleges working in collaboration with local schools to improve teacher preparation and recruitment. ⇒ Business/Industry Challenge Program: Matching grant funds to communities to help address issues that hinder teacher recruitment (i.e. safety, parking, work environment, housing). State funds must be matched with private/local government funds. ⇒ Master Teacher Program: Grants to support application fees, preparation time, and substitute teachers of outstanding teachers with professional certificates achieve advanced certification from the National Board for Professional Teaching Standards. ⇒ Regent/State Education Department Teaching Campaign: Encouragement for students to choose teaching as a profession. ⇒ Education Commissioner Cooperation Program: Promotion of 2 & 4 year college cooperation to streamline preparation for teachers. Reduction of barriers to certification of out-of-state teachers. Teachers with out-of-state certification no longer required achieving qualifying scores on the New York State Teacher Certification Exams. ⇒ Temporary Teacher Licenses: Issued to visiting practitioners who present unusual qualifications in specific subjects.
Ohio	⇒ Cuyahoga Community College: Utilized Ford Foundation monies to recruit minority adult students into teaching. Actively recruits men who have left college without graduating, largely former college athletes who were dropped from teams and dropped out of college. Strong articulation agreement with Kent State.
South Carolina	⇒ Critical Needs Certification Program: Graduates with undergraduate or graduate degrees in critical needs areas attend two intensive 1 month training programs before and just after their first semester of teaching. During the first year of teaching, they attend monthly seminars and work with an assigned teacher-mentor. After one year CNCP students receive their teaching certificate. ⇒ Progressive Education & Experience Based Pay Scale: In 1998-99 school year, average teacher salary was $33,608. Minimum beginning teacher's salary with a bachelor's degree & 0 years experience was $22,255. This pay scale is very competitive in light of the lower cost of living in south Carolina.
Texas	⇒ Texas Gulf-Coast Teacher Job Fair: Provide staffing for 6000-7000 teaching positions annually. Extremely competitive salaries and benefits. Affordable housing available. Provide international diversity within a leading academic center in the Southwest. ⇒ Dallas County Community College "Grow Your Own": A partnership with the Dallas public schools and 4 local universities. Targeted to develop new bilingual teachers, the public school system will pay for the program if participants agree to teach in the system for 5 years. Also target paraprofessional in the community college as well as non-teacher professionals from Mexico who wish to be retrained.

1997 NASH/EDUCATION TRUST MEETING

Betty Elliott, Vice President , Great Basin College
Mendy Elliott, Vice President, Wells Fargo/Norwest Bank
Jane A. Nichols, Vice Chancellor, University and Community College System of Nevada
Mary Peterson, Superintendent of Public Instruction
John Readence, Dean, University of Nevada, Las Vegas
George Ann Rice, Assistant Superintendent, Clark County School District
David Westfall, Vice President, University of Nevada, Reno

1998 NASH/EDUCATION TRUST MEETING

Holly Walton-Buchanan, Education Consultant, Nevada Department of Education
William Cathey, Associate Vice President, University of Nevada, Reno
Mendy Elliott, Vice President, Wells Fargo/Norwest Bank
Barbara Cloud, Associate Provost, University of Nevada, Las Vegas
Charles Holt, Assistant Vice President, Great Basin College
Teresa Jordan, Associate Dean, University of Nevada, Las Vegas
Jane Nichols, Vice Chancellor, University and Community College System of Nevada
George Ann Rice, Assistant Superintendent, Clark County School District
Steve Rock, Director Research & Educational Planning, University of Nevada, Reno
Robert Silverman, Senior Vice President, Community College of Southern Nevada
Gale Hansen Starich, Faculty Associate, University and Community College System of Nevada
Peter Starkweather, Associate Dean, University of Nevada, Las Vegas

NATIONAL LEADERS IN ENGLISH/LANGUAGE ARTS, MATHEMATICS, AND SCIENCE

Nicholas Branca, Professor of Mathematics, San Diego State University
Gail Burrill, Senior Program Officer, University of Wisconsin-Madison
Dan Jones, Dean, Towson University of the University of Maryland
George Miller, Direct Science Education Programs, University of California, Irvine

UNR LEADERS AND FACULTY – STANDARDS WORKSHOP

Bill Cathey, Assistant Vice President
Joe Cline, Science
Martha Combs, English Language
Stephen Lafer, English Language
Peggy Lakey, Math
Paul Neill, Science
Donald Pfaff, Math
Mike Robinson, Science
Steve Rock, College of Education
Rich Schweickert, Science
Stephen Tchudi, English Language
Shane Templeton, English Language

Appendix D
Participants in the K-16 Collaborative and Teacher Education Study

UNR LEADERS AND FACULTY – STANDARDS WORKSHOP

Lee Thomas, English Language
Lee Weber, Science
Lynda Wiest, Math

UNLV LEADERS AND FACULTY – STANDARDS WORKSHOP

Arthur Baragar, Math
Michael Bowers, College of Liberal Arts
Barbara Cloud, Provost Office
Juli Dixon, Math
Boyd Earl, Science
John Farley, Science
Marilyn Ford, Math
Chris Hughes, English Language
Jeff Johannes, Math
Marilyn McKinney, English Language
Ed Nagelhout, English Language
Bill Pankratius, Science
Peter Starkweather, College of Science
Dave Weide, Science
Diana Williams, College of Education
Martha Young, College of Education

COMMUNITY COLLEGE FACULTY – STANDARDS WORKSHOP

John Adlish, Science
Eun-Woo Chang, Science
David Charlet, Science
Anna Douglas, English Language
Cliff Ferry, Education and English Language
Bob Fletcher, Education
Mike Hardie, Math
Marion Littlepage, Math
Kevin Laxalt-Olsen, Education
Michon Mackedon, English Language
Richard McNally, English Language
Bill Newhall, Math
Sherry Rosenthal, English Language
Michelle Rousselle, Education
Don Smith, English Language
Donna McCay Tibbetts, Education

Appendix D
Participants in the K-16 Collaborative and Teacher Education Study

NEVADA SCHOOL DISTRICT SUPERINTENDENTS OR DESIGNEES

Jim Parry, Superintendent, Carson City School District
Mary Pierczynski, Carson City School District
Ronald Flores, Superintendent, Churchill County School District
Brian Cram, Superintendent, Clark County School District
Pendery Clark, Superintendent, Douglas County School District
John Soderman, Assistant Superintendent of Personnel Services, Douglas County School District
Marcia Bandera, Superintendent, Elko County School District
Diane Hecht, Director of Elementary Instruction, Elko County School District
Don Francom, Superintendent, Esmeralda County School District
Neil Stevens, Superintendent, Eureka County School District
Tony Wiggins, Superintendent, Humboldt County School District
Eddie Booth, Assistant Superintendent, Humboldt County School District
Leon Hensley, Superintendent, Lander County School District
Randall Allen, Principal, Meadow Valley Middle School, Lincoln County School District
Nat Lommori, Superintendent, Lyon County School District
Pat Boyd, Associate Superintendent, Lyon County School District
Richard Stokes, Superintendent, Mineral County School District
Geraldine Harge, Superintendent, Nye County School District
Daniel Fox, Superintendent, Pershing County School District
Dan Piel, Superintendent, Storey County School District
Karen Watson, Director of Personnel, Storey County School District
Lynn Sawyer, Personnel Services Coordinator, Washoe County School District
Mark Shellinger, Superintendent, White Pine County School District
George Ann Rice, Clark County School District
Kendyl Depaoli, Washoe County School District

Appendix E

Comments from University Faculty and National Leaders on the UCCSN Workshop Aligning K-12 Academic Standards and Preservice Teacher Education

NEVADA FACULTY REPRESENTATIVES

Dr. Martha Young – Associate Dean, College of Education, University of Nevada Las Vegas: *Reflections and Perceptions of the October 15-16, 1998 Workshop*

Developing quality education programs was at the heart of the activities that occurred during the Teacher Education & Academic Standards Workshop held in Las Vegas, October 15-16, 1998. Colleges of Education are traditionally viewed as holding the primary (and only) responsibility for "the making of a teacher." The purpose, however, of this workshop was to investigate ways in which to share and assume responsibilities across campuses so that teacher education becomes a commitment shared by content *and* pedagogy fields. As a result of the two-day dialogue, the following perceptions and questions became clear.

- It is imperative that content and "teaching" departments share in the vision of the "making of a teacher."
- Establishing dialogue across campuses (intra-and inter-collegial) is essential if we are going to build strong teacher education programs.
- The new Nevada K-12 standards establish clear-cut content standards, which must be understood in terms of the content to be taught, as well as ways in which the content should best be taught.
- Our collective goal should be to provide a knowledge base for teachers that takes them far beyond the minimum standards established in the K-12 Nevada standards. (PLUS knowledge)
- How meaningful can our dialogue be if we are unable to discuss the relationship between assessment and pedagogy?
- What can be done to reconcile the differences between application-based standards and fact-based assessments?
- It is imperative that the idea of PLUS knowledge be the basis for teaching the K-12 standards--that means that curricula, methods, and assessments are also based in PLUS knowledge.
- If all institutions of higher learning are responsible for preparing students to possess PLUS knowledge, all such institutions must share in developing courses and curricula that reflects that shared responsibility (we must have time and opportunity to collaborate).
- Woven throughout the two days of discussion was this question: "How to we blend content and pedagogy as well as model this for pre-service teachers?" Traditionally, education faculty have provided the only modeling of this--it needs to be evident in content teachers as well.
- The issue of assessment is seen through changes based on standards-based reform, what assessment is best suited for teachers and students, and the forms of knowledge that K-12 students should learn. How do we take control of assessment?
- What is the relationship between PLUS knowledge and assessment? How will the K-12 standards be assessed? What do teachers have to know and be able to do to help students pass the new assessments?
- The opportunity to establish dialogue across the State of Nevada was invaluable--in some ways this was much more meaningful than the sustained conversations. If institutions of higher learning are going to function as a whole, responsible for the shared vision of providing quality education for Nevada students, we must have opportunities to learn and grow together. We cannot exist in isolation and, at the same time, move as a cohesive force to reform education in Nevada.

Appendix E

Comments from University Faculty and National Leaders on the UCCSN Workshop Aligning K-12 Academic Standards and Preservice Teacher Education

Dr. Steve Rock, Director, Research and Educational Planning Center, College of Education, University of Nevada Reno: *Summary of Teacher Education and Academic Standards Workshop*

The University and Community College System of Nevada convened the Teacher Education Workshop to consider the implications of the new K-12 standards in mathematics, science and language arts for teacher education programs. Faculty represented all UCCSN institutions from both education and content areas.

Conclusions:

1. Science group reported that while all standards were covered in current courses, it might be difficult for an elementary education student to obtain all the skills from a typical course of student. Secondary majors should be able to have areas covered.
2. Math group reported that all areas were covered but concerns about the developmental appropriateness of some standards.
3. Language Arts group reported that current curriculum offered students the opportunity to develop on the skills contained in the standards. The group discussed concerns about a perception that some graduates do not have the necessary skills in the basic mechanics of writing. The group was also concerned about the developmental appropriateness of some standards.

Recommendations:

1. Statewide discipline groups should meet and articulate the plus knowledge (knowledge necessary to teach the standards).
2. Draft of the plus knowledge should be completed within the next 30 days.
3. Master teachers should be added to the discipline groups.
4. Teacher attributes being developed by Clark County School District should be considered.
5. INTASC (Interstate New Teacher Assessment and Support Consortium) should be considered for describing the necessary skills for pedagogy.
6. Once the plus knowledge is articulated, UNR and UNLV with involvement from supporting community colleges will develop their own assessment process.
7. The database for alignment of courses and benchmarks should continue.

NATIONAL FACULTY

The National Faculty who attended the Teacher Education Workshop agreed to aid in the discussion of the new state academic standards and teacher education programs. All are proficient in their disciplines, but also deeply committed to educational reform. Not only did they be aiding us to put together our thoughts for two days, but they gave us their considered opinions on the process and content of standards-based reform in our state.

Dr. Dan Jones, Ph.D., English/Language Arts

Dr. Jones comes from Towson University, near Baltimore, Maryland. He is currently the Dean of the College of Liberal Arts, moving from his position as Chair of the Department of English in 1995. Towson University is a liberal arts college that graduates large numbers of teachers. Dr. Jones has not

only helped to revamp the English curriculum and Professional Writing Program at Towson University, but has been instrumental in developing numerous interdisciplinary programs, especially for teachers. While the development of writing skills for the disciplines is a major focus for Dr. Jones, the creative aspects of writing are also paramount for this published poet. He has also been instrumental to helping Towson University to respond to the changing face of higher education. Older students, single parents, and working adults all come to Towson University for a liberal arts education. Dr. Jones insists that the curriculum must evolve to respond to student needs, both physical and emotional.

I want to thank you for including me in the Improving Teacher Preparation in Nevada Conference held in Las Vegas, October 14-16, 1998. I found the conference, to be stimulating, effective, and efficient and I hope to borrow freely from it as I contribute to K-16 activities in Maryland.

The *few* formal observations I have to report are meant to reinforce *my* impression that the Conference was one of the most successful K-16 initiatives I have attended. Planning, organization, and content combined to assure that the participants focused closely on the task of alignment and engaged in valuable activities.

Planning: It was readily evident that the university and community college participants had been personally contacted and fully prepared for the conference in advance. Both serious and ready to work toward successful alignments of Nevada State Standards and post-baccalaureate curricula, the state faculty for each area of alignment appeared in agreement with the standards themselves, so were free to address issues of curriculum efficiently. I commend the thoughtful and effective planning that you and the members of the Education Trust completed prior to the conference. It contributed to creating a conference atmosphere of trust, mutual respect, and constructive thought.

Organization: Organizing the conference to include both working state-wide discipline groups and regional faculty groups contributed greatly to accomplishing the purpose for which the conference convened. I was surprised and impressed that so much was achieved in a day and a half, that all constituents had an equal voice in discussing issues and forming recommendations, and that the conference ended with participants in clear consensus. I will recommend to Dr. Nancy Shapiro, the administrative executive for the Maryland K- 16 initiative, that she use the organizational model you developed for similar alignment projects in Maryland.

Content: The Education Trust report, "Achieving Coherence: Tests, Teacher Qualification, and State Standards," underscored the need for post-secondary disciplinary faculty to engage in improving teacher preparation and the importance of curriculum alignment. The concept of "plus knowledge," clearly communicated, served to motivate participants and to erase any sense the curriculum might be weakened by aligning higher education course content to K-12 standards. The concept, in fact, transformed the task of alignment into an intellectually challenging activity which, if fully explored, promises curriculum reform at the post-secondary level that should enrich disciplinary content and advance learning-centered pedagogy for both the general education and teacher education programs in Nevada. The group discussions I facilitated or attended all focused not only on aligning curriculum to standards but also on creating demanding post-secondary expectations and assessments to assure that future teachers develop the "plus knowledge" and pedagogical skills to become exceptional teachers. Again, I will recommend that Maryland undertake a "plus knowledge" alignment parallel to what I saw

richly taking form at the Nevada conference. It seems to me to be the major "conceptual breakthrough" which will persuade Arts and Sciences faculties to actively participate in teacher preparation, the creation of effective standards, significant curricular reform, and improved assessments.

Observations/Recommendations: I noted that the disciplinary team working on English/Language Arts alignment of standards and course content may have too readily identified that existing courses incorporated instruction appropriate to preparing a teacher to reach the standard. I would recommend that:

1. You identify a coordinator for the completion of the alignment and definition of appropriate assessments who will keep the work focused on effective and genuine curricular reform.
2. That the team be charged to define a parallel plus knowledge gain for each standard, which would in turn guide the curricular reform. That through a web-site or a one-day conference the two regional teams stay in close contact and focused on finding more consensus than difference in how Nevada establishes "plus knowledge" expectations for each standard.

George Miller, Ph.D., Science

Dr. Miller is Senior Lecturer Emeritus in the Department of Chemistry at the University of California at Irvine. He also serves as the Supervisor of the Nuclear Reactor Facility and Director of the Science Education Programs in the School of Physical Sciences. Educational reform in California has been of primary interest to Dr. Miller for several years. He has also been instrumental in authoring the California science proficiency exams and in developing assessments for science teacher candidates. Dr. Miller insists on maintaining his undergraduate lectures in chemistry. He is committed to revising and adapting both course work and assessments to reflect a student's understanding and mastery of science. Designing curricula to prepare teachers to instruct the emerging hands-on science inquiry must include integrated skills if science literacy in to advance in our country.

Accomplishments. The meeting of faculty appeared to accomplish a great deal in building an agenda for future actions. Much detailed planning still needs to be accomplished. Not surprisingly, some time was spent in "networking" among people who obviously have not met often, if ever. This was time consuming but vital, if the group is going to move forward with a common agenda.

Many, I think, were having some difficulty in accepting that this whole initiative was "for real" - a standard faculty skeptical reaction. The Chancellor's Office representatives were very forthright in making its commitment clear, though the message needed to be repeated to overcome the skepticism. By the end, I believe that many were beginning to recognize that the "Alignment of Standards" was only the more visible part of the iceberg and that to a considerable extent the future of the quality and quantity of the entire K-16 education in Nevada was "on the table". In particular the notion that "plus knowledge" needs to be clearly defined and included in courses and expectations was novel and a challenge. "Plus knowledge" is the additional knowledge and skills needed by a teacher over and above that listed in Academic Standards in order to successfully bring all students to effective achievement of the Standards.

I spent some time in working to provide background information regarding National and California efforts, and then in listening to subsequent focused discussions. Education Trust consultants provided much information. Because of the broad range of backgrounds of individuals in attendance, some attendees needed this background review more than others. It is difficult to see how an over-coverage for some could have been avoided since it was crucial to involve individuals with a wide variety of experiences in this beginning workshop.

It appeared that useful leadership individuals were identifying themselves. These can provide a core leadership team to keep the process moving. It was important that these came from both within and outside the Teacher Education faculty.

Suggestions It is clear that the enthusiasm of the Chancellor's Office needs to continue to be expressed and pressure and clear support maintained to assure progress towards specific recommendations and implementation. The Office should continue to stress that this is a permanent discipline-wide responsibility for which collaboration between Teacher Education and other disciplines is expected.

The only major suggestion for improvement, which may work for a follow-on meeting, is to structure one or more retreats for key leaders. Attendees would be less able to "come and go" and be isolated more from regular duties so that continuity of discussion and purpose occurs to foster design in some detail the elements of change.

Work by disciplines, regions, and a campus was to continue. This should be effective as specific examples of coursework and assessments can be examined and the plans for change can be more concrete. Vigilance will be needed to assure that a program evolves that has at least a modicum of uniformity statewide so as not to confuse the important audiences of legislators, school district personnel, and future teachers. "Best practices" should be cloned (or nearly so) at several locations.

Science Academic Standards In general, these do a good job of reflecting what students need to know and be able to do. They need to be backed-up by more detailed work to delineate for teachers how students might demonstrate their understanding (performance/assessment standards).

In some cases there are gaps where one might expect some continuity (e.g. a grade level gap where one might expect some follow-up and reinforcement (even though the main focus of that grade level might be different). As just one example, one might expect a 1.3.4 in Machines for 4th grade that would say something like: "Investigate and describe mechanical toys that exemplify how direction or amount of motion can be changed in a machine." rather than skipping 4th grade.

The reliance on National Standards models has left in place some of their deficiencies. One glaring example is the apparent absence of SOLUTION properties. Where does a student learn about solutions and the changes in properties that are related to concentration? If one asks the simple question - where in the standards will a student understand the implications of antifreeze for cars, or salt or other substances on icy roads (yes, Nevada has some of these!) or the changes in biological cells related to solution concentrations", it is not easy to find. One can invent a slot (such as 4.5.1, or 3.5.x, or 2.5.x, but the focus of those "rows" seems somewhat different.

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A second obvious gap seems to be around the concept of equilibrium in all areas, and reversibility in physics and chemistry. Again it is a question of focus, which more detailed expansion of a matrix cell might provide the necessary elaboration. One finds the term in 6.12.1, but the emphasis seems to be on disease disruption. Where do we learn what maintains the equilibrium for the disease to disrupt?

Some of the criticism is probably engendered by the very brief descriptors used for 9-12 curriculum. In some future iteration, it may be as well to permit these matrix cells more space and "words" to more adequately indicate the richness that the 9-12 curriculum should have. An outsider glancing at these would tend to conclude little needs to be accomplished during 9-12!

Nicholas Branca, Ph.D., Mathematics

Dr. Branca is currently a Professor of Mathematics at San Diego State University, but has also been a teacher of high school mathematics. He serves on the California Mathematics Project and has been involved for many years in standards-based educational reform. His work with the National Council of Teachers of Mathematics and the California Mathematics Council has also helped to give him a perspective on how we teach mathematics both in elementary and secondary school. Working to improve California mathematics instruction has not only presented challenges to Dr. Branca. It has also helped him develop a depth of understanding of how educational reform happens. He has extensive experience in examining academic standards and helping educators integrate them into a teacher education curriculum.

I was privileged to be a part of a two-day workshop, October 15-16, examining teacher education and academic standards in mathematics, English language arts, and science for the State of Nevada. My role as a Mathematics National Faculty was to kick-off a discussion between mathematics discipline and education faculty from the University and Community College System of Nevada and to facilitate subsequent discussions. The focus of the discussions was on the relationship of current teacher education programs to the new State of Nevada Academic Standards. The concept of "Plus" knowledge necessary to teach the discipline was used as a beginning point for discussion purposes. In addition to looking at curriculum, the role of assessment was also considered.

I began my discussion with the University/Community College Mathematics discipline group by presenting a problem for discussion. The problem asks "If you have a 5 by 5 array of tiles, how many tiles would there be around the border? If the array was 10 by 10, how many tiles would there then be around the border? and finally, If you had an N by N array of tiles, how many tiles would there be around the border?" The problem was chosen because it elicits many different ways of looking at the problem from those solving it. Some solutions rely on geometric views of the problem where others may be more symbolic. For example, in the case of the 10 by 10 array, some individuals look at the border as consisting of 4 sides, each containing 10 tiles, giving a total of 4x10 or 40 tiles, and then this total is reduced by 4 (40 - 4 = 36) since the 4 corner tiles would have been counted twice. The general rule used by individuals looking at the problem this way is 4xN - 4. Others look at the border much as they would a picture frame and consider it as 4 lengths of 9 joined together at the corners or 2 lengths of 10 (top and bottom) and two lengths of 8 on the sides. These produce the general rules of 4x(N-1) and 2xN + 2x(N - 2) respectively. Still others may look at the total array as a square 10x10 =

100 and subtract from it the inside square 8x8 = 64 leaving the border to be 100 - 64 = 36. This gives a general rule of N squared minus the quantity (N - 2) squared. I facilitated a discussion of the many ways of looking at this problem, carefully valuing each of the different views and where appropriate showing how the different methods were alike and how they differed.

After this discussion, I stopped and asked the participants to focus on my role in the presentation. What knowledge did I need to have to be able to facilitate the discussion? What content knowledge was important? What pedagogical knowledge? Where might I have obtained this knowledge? How important is it to have this knowledge? My purpose in doing this was to focus on the construct of Plus knowledge and make it real for the participants. I quickly turned the discussion to the question of where in their teacher preparation programs do students get Plus knowledge.

In each of the sessions I facilitated, a recorder was chosen to keep a written record of the important points of discussion. Those points should appear in the final report of the workshop and I won't attempt to summarize them here. What I would like to do is present some of my impressions on the process used. First let me state how impressed I was with the mathematics and mathematics education faculty that attended the workshop. It was obvious that considerable preparation had occurred before the workshop on analyzing the current programs of the system and relating them to the Nevada Mathematics Standards. The use of the construct of Plus knowledge was an excellent way to engage each of the participants in discussions that focused on the program in positive ways. What could be added to the program to make it better as opposed to what has been left out. A drawback to this notion of what could be added is that it assumes the current structure should remain in place and may not open up the discussion to different structural options. Although the notion of not just adding course to an existing program was mentioned, this seemed to be the initial reaction of some participants in trying to meet the needs of students preparing to be middle school teachers.

The overall agenda for the two days was well balanced with large group, discipline based groups, and regional group sessions. It may have been a bit ambitious in trying to put so much in the table at once. Issues of curriculum, standards and assessment could each fill a two-day agenda on their own. However, since this is seen as a beginning to a much longer process, the choice of the agenda was probably reasonable as long as the individual components get the attention they deserve.

One final observation that should be stated is that providing opportunities for faculty to share what they are doing and what is happening in other institutions is critical. I observed a number of instances during the discussions where points of information needed to be clarified or explained so that individuals knew what was happening on the different campuses and what state and/or national trends were. The creation of a listserve for communication appears to be an extremely positive outcome for this process.